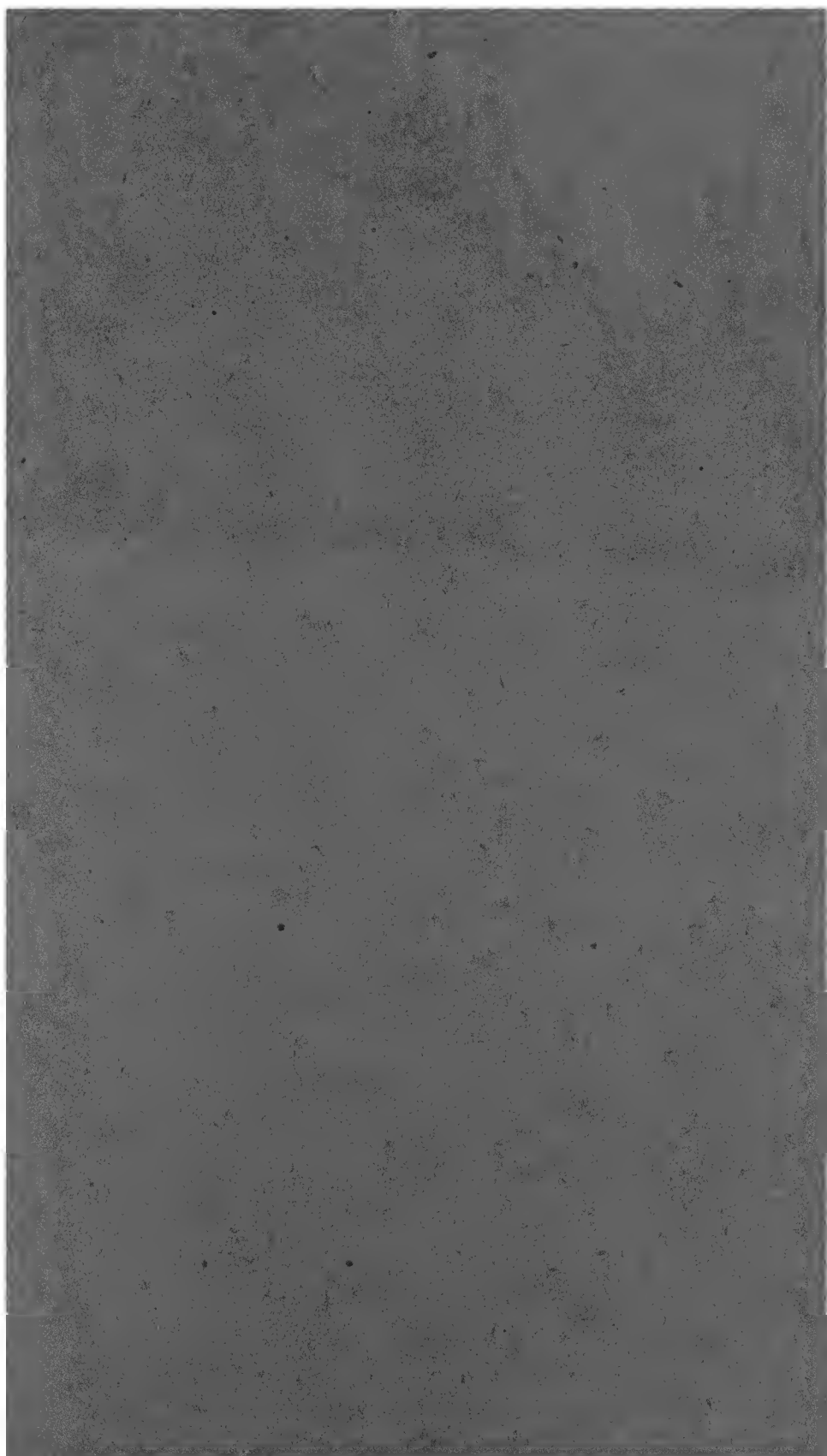


ANNUAL REPORT
OF THE
Department of Agriculture
OF THE
NORTH-WEST TERRITORIES
1902

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY



REGINA :
JOHN A. REID, GOVERNMENT PRINTER
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DEPARTMENT OF AGRICULTURE,

REGINA, *March 1, 1903.*

To His Honour

AMÉDÉE EMMANUEL FORGET,

Lieutenant Governor of the North-West Territories.

SIR,—

I have the honour to submit herewith the Annual Report of the Department of Agriculture for the year 1902.

I have the honour to be, Sir,

Your obedient servant.

W. ELLIOTT,

Commissioner of Agriculture.

REPORT

OF THE

DEPUTY COMMISSIONER

DEPARTMENT OF AGRICULTURE,
REGINA, *March 1, 1903.*

W. ELLIOTT, Esq., M.E.C.,
Commissioner of Agriculture.

SIR,—I herewith have the honour to submit for your approval the Fifth Annual Report of the Department of Agriculture for the North-West Territories, which contains a statement of the work done during the year ended December 31, 1902.

In order to present the contents of this report in convenient form for ready reference, I have divided it into the following sections :

- I. Crops.
- II. Live Stock.
- III. Agricultural Experiments.
- IV. Transit and Markets.
- V. Agricultural Educational Work.
- VI. Colonisation.
- VII. Miscellaneous Services.
- VIII. Public Health.
- IX. Office Work and Organisation.
- X. Appendices.

I.—CROPS.

WEATHER CONDITIONS AND STATISTICS.

In previous reports of this Department no opportunity has been neglected for emphasising the importance of the relation which reliable meteorological statistics—especially those which relate to precipitation and temperature—bear to practical agriculture, and while, no doubt, there are some persons who might be disposed to question the propriety of a local Department of Agriculture devoting any part of its time to the collection and compilation of figures under this head, yet to those who have faith in the tremendous agricultural possibilities of the North-West Territories, and are aware of the many problems connected therewith that are even now being forced upon the Department, it must become abundantly evident that accurate and timely climatological data must be an essential factor in the development of these possibilities and in the solution of the correlated problems. The application of meteorological science to agricultural practice has in the United States reached far beyond the theoretical and tentative stages, and the magnificent

work now being carried on by the United States Weather Bureau in soil surveys and other directions may well prove an incentive to the meteorologists of Canada, where nothing in this line has heretofore been attempted, largely, no doubt, on account of the absence of the necessary legislative and financial provision for it.

It should be borne in mind that the conditions of settlement in the Territories differ altogether from those prevailing when the older provinces of the Dominion were opened up. The early Ontario settler was in the midst of entirely primitive conditions as regards transportation and facility of intercourse with the outside world. He lived a simple and strenuous life and hewed his little clearing painfully out of the primeval forest. His best energies were directed not to saving money or accumulating real estate, but to making a bare living. His invested capital was represented by the result of his own personal labour unassisted by improved machinery. His markets for the disposal of farm produce were absolutely independent of the world's supply and demand, and were governed entirely by local influences. He had little and consequently had little to lose. His prosperity was of slow growth and he could afford to learn by experience, and indeed was forced to do so. Weather conditions, except those of the moment, were of no importance whatever to him. All things moved slowly and the progress of settlement was amongst the slowest of these.

It is almost unnecessary to point out that a complete reversal of these conditions of settlement exists in the North-West today. Immigration is pouring in and capitalists are falling over each other in the race for our lands. No sooner does the settler commence to farm than he commences to make money and accumulate property. His market prices are governed by those of Chicago and Liverpool. He is not content with growing enough wheat to feed his family, but produces thousands of bushels of it to feed others. His agricultural season is short and every moment of it must be put to the best possible use if he is to "keep up with the procession." His crops are large and valuable, and weather conditions, past, present and future are of the utmost consequence. Under such circumstances it is clear that he has a right to expect every kind of assistance that a government can be fairly called upon to give, and nothing can be of greater usefulness to him than to furnish, in ways by which he can easily understand and quickly assimilate it, reliable and up-to-date information as to the actual conditions under which he has to do business, of which the climatology of the country constitutes a most essential and practically valuable feature. With the possibility facing us of an over-production of hard wheat, and in the interest of the development of live stock husbandry, it is absolutely necessary that experiments along the lines of extension of agricultural operations, in the Territories, to other crops be entered upon forthwith, and in another portion of this report will be seen what is contemplated in this direction. It need only be pointed out that work of this nature would be quite impracticable and valueless unless conducted in accordance with the climatological conditions indicated by data such as those already collected and published in the Department's reports.

The close connection existing between meteorology and agricultural statistics is well illustrated by the fact that in The Appropriation Act of 1902-3 the Congress of the United States inserted a clause calling upon the Secretary for Agriculture to report to the next Congress the advisa-

bility of consolidating with the Weather Bureau all the work of the department relating to the gathering and compilation of crop reports and statistics. While the Secretary, for purely administrative reasons, reported adversely upon the proposition, the mere fact that it was submitted is significant and shows that the chief legislature of the United States is fully cognisant of the intimate relation which exists between these two branches of the public service.

The necessity for a certain amount of meteorological work in connection with this Department was fully recognised at the time of its organisation, and steps were taken at the earliest opportunity to popularise such information with regard to Territorial climate as was then available and to assist and further the work of the meteorological service in every way possible in order to obtain more extended observations and greater accuracy of results. The Director of the Meteorological Service at Toronto, Mr. R. F. Stupart, has throughout co-operated cheerfully with the Department in the matter and, as a consequence, the number of voluntary meteorological stations in the Territories has been increased from 14 in 1897 furnishing 127 reports, to 39 at the close of 1902 furnishing 383 reports. Eight new stations were opened during the year, and are in actual operation, as follows: Wetaskiwin, J. H. Walker, observer; Abernethy, F. M. Anld, observer; Whitewood, Rev. T. N. Harrowell, observer; Threehills Creek, W. E. Cutler, observer; Pakan, J. A. Mitchell, observer; Bon Accord, J. H. Schofield, observer; High River, Thos. W. Robertson, observer; and Willow Bunch, McGregor Rapelje, observer. Of these Whitewood and Pakan are precipitation stations only. The following stations have been furnished with instruments recently and will be in operation shortly: Onion Lake, Lacombe and Dundurn. New stations are located so that, as far as possible, the extensions of the system follow the course of settlement. During the year Mr. Marshall Smith, observer at Moosomin; Mr. Lewis Hooper, observer at Estevan; and Capt. J. W. Keast, observer at Red Deer, were replaced respectively by Mr. E. L. Elwood, Dr. D. R. Davies and Mr. Edwin Gray. The thanks of the Department are due to all observers for the prompt rendering of monthly reports and for the cheerfulness with which such special reports as were asked for have been furnished.

The usual tables will be found towards the end of this section of the report, as follows: (1) Annual precipitation for the last eleven years and averages; (2) Total precipitation for each month of 1902; (3) Mean, maximum and minimum temperatures and dates of minimum for each month of 1902; (4) Latitude, longitude and elevation of each of the Territorial meteorological stations; (5) Mean, daily temperature, total precipitation and crop yields for each crop district (*) for the past five years.

DISTRICT REPORTS.

JANUARY.—*Calgary*.—January weather for the first part of the month was particularly fine, with a continuation of the bright sunny days of the previous three months, but with less wind and scarcely more frost during the night. A brisk, sharp shower of rain occurring early in the month, accompanied by a heavy north wind and little snow, was the phenomenon of the month. On the 23rd a cold wave swept over the

(*) For description of crop districts see under "Crop Statistics."

district, and low temperature, accompanied by high winds and flurries of snow, has prevailed since. The range stock are still fat and sleek, but little fodder has been used and there is as yet no perceptible shrinkage in the cattle. *Medicine Hat*—The mild weather of December stayed with us until the 23rd, when the wind set in from the north west bringing a snowstorm and sending the thermometer below zero; the weather of the last week has been cold but quite seasonable, the cold nights being offset by bright sunshine during the day; stock is ranging and feeding well and suffering in no degree either from want of food or water, or from the low temperature during the nights. *Regina*—Regina district chiefly fair—mild with variable winds to the 22nd, when a slight storm from the north-east ushered in severe cold which continued to the end of the month.

FEBRUARY.—The month opened with very cold weather which lasted until the 10th; the temperature then rose and moderate winter weather continued until the 17th when, in Alberta, the temperature rose above 32 degrees, and on the 19th did so in nearly all parts of the Territories; the weather then remained wonderfully mild until the close of the month. *Calgary* reports February for the first half was, generally speaking, good, steady, winter weather, but with very little snow and no driving storms which prove disastrous to stock; the last half has witnessed a considerable rise in temperature, and the weather on the whole has been very agreeable. Stockmen are still highly pleased with the results of the winter so far, the stock still remaining fat and strong, with very little fodder being used; geese going north have been reported from Southern Alberta, but none have been observed here. What little snow fell during the month has mostly disappeared. The phenomenon of the month was almost continual fog for last few days, but which now appears to have cleared up. *Medicine Hat*—The weather during the early part of the month was sharp and cold, with a light fall of snow. On the 10th we had a rise in the temperature followed by comparatively mild weather to the end of the month, marked by dull cloudy days, occasionally thickening into haze. This cleared the snow from off the ranges and opened up the feed; the condition of all kinds of stock is excellent, it being generally admitted that stock never looked so well on the first of March as it does this year. *Regina* reports very cold, with north-west winds up to the 8th; then moderate to mild during the balance of the month, with south-easterly winds; 6 inches of snow fell during the month, but did not lie; sleighing fair on country roads; bad in town. Six inches of snow fell at Chaplin on the 13th.

MARCH.—The weather was on the whole milder than average and only one severe cold spell occurred. The snowfall was deficient in Alberta and Western Assiniboia, but was excessive in the more eastern districts during the latter part of the month. *Regina* reports up to the 13th the weather was bright and mild, and from the 14th to 17th very cold and stormy; rest of month mild; stormy with snow on 28th and 29th. *Calgary*—March weather, with the exception of a couple of short spells, has been fine and favourable for the stock. About the middle of the month a cold snap occurred, and although the temperature dropped to 24 degrees below zero, it only continued for a short time, and fine weather again prevailed till the 28th, when a very high, cold, north-west wind set in, and lasted for two days, sometimes registering 50 miles per hour. Before the middle of the month green grass was

showing on the south sides of the hills, and gophers were out in numbers; robins were seen on the 27th near station. The cattle are all strong and healthy, and comparatively little fodder has been fed to range stock, and, unless April proves a worse month than usual, the cattle men will have a record year to report; some seeding was done the early part of last week, but only in a few places. *Medicine Hat*—The March snowfall has been light, and many days warm and spring-like; a wind storm occurred on 28th. *Battleford*—Heavy rain fell on the 25th, followed by a blizzard on 28th; must prove hard on stock; spring backward. *Swift Current*—Month set in remarkably fine, with even temperature, reaching 42 degrees on several days, and strong winds were not so prevalent as usual. There was a heavy snow storm on the 25th, and again on the 28th and 29th, attended by an old time blizzard, leaving drifts four and six feet high. *Prince Albert*—Spring progressing rapidly; trees beginning to bud; snow nearly gone.

APRIL.—*Calgary*—April weather of this year has been a great improvement on that of last year, and although the nights have been cold the days have been mostly bright and sunny, but with considerable high wind. There has been very light precipitation and no bad storms, and on the whole it has been favourable for stock on the ranges. There are already a large number of calves, among which there has been very little mortality, while the losses among the older cattle have been practically nil. The ranges, where not eaten down close, have a great deal of green grass showing, though on burnt or bare prairie the cold nights have retarded growth. Spring flowers are numerous, but as yet the trees have budded very little. A heavy storm of mixed snow and rain set in on the 1st of May. *Prince Albert*.—Seeding began about the 20th; Saskatchewan running on 18th. *Edmonton*.—Weather more favourable for seeding; wheat-seeding about finished; trees only starting to bud out. *Medicine Hat*—The weather during April was fine and warm with occasional high temperatures, very light rain and almost continuous winds; vegetation has felt want of rain and is backward to some extent; seeding finished; stock conditions good. *Swift Current*—Cold and varied month; ice broke up on creek on 5th, and had all disappeared by 11th; brilliant aurora night of 11th; thunder storms on 19th, 27th and 29th, attended by light showers of rain; wild fowl appeared on the 4th; ploughing and seeding in operation, but season late; prairies commencing to look green. *Battleford*—Seeding fairly advanced; ground well prepared; very little or no growth of grass as yet. East winds prevailed throughout the month, and prairie fires have been burning since snow disappeared. *Regina, Eastern Assiniboia*—Generally cool to chilly; variable wind; wild fowl arrived about 8th. Seeding, Moose Jaw, 9th; Regina and east, 14th. Seeding stopped by snow 20th, resumed few days after. *Western Assiniboia, Crane Lake*—Seeding, March 22nd; ploughing, April 1st; grass, 18th; snow 2½ inches. *Chaplin*—Rain .06. *North Alberta*—Wild fowl first week; grass, 18th; seeding 5th to 14th. Thunder, West Beaver Hills, 23rd; ploughing, Red Deer, 11th. *South Alberta, Didsbury*—Oats sown March 27th; ducks and geese, March 31st; light hail, 12th; snow, 14th. *Stirling* reports spring late; frequent frosts; seeding in progress; soil very dry. *Saskatchewan, Duck Lake*—Ducks and geese, 8th; grass, 14th; seeding, 14th. *Qu'Appelle*—Seeding operations general; growth slow; no prairie fires.

MAY.—*Alberta* suffered from exceptionally bad weather during the month, but fortunately these conditions were not widespread and reports generally are very encouraging. *Calgary*—May opened with a three days' snow storm which proved destructive to weak cattle and young calves. Again, about the 18th, a very heavy rain, accompanied by very high winds, set in causing a sudden rise in the streams, washing out bridges, culverts, and doing a great deal further damage to stock. Grains are, however, well forward and a good crop of hay is promised. Seeding was mostly done in April and was practically finished before the big rain storm set in. Low lands were considerably flooded and it is expected the grain on such lands will be scalded. Range stock generally is looking very well and warm, dry weather would insure good beef and good crops. *Edmonton*—Roads almost impassable; area sown much reduced owing to the wet condition of the soil. *Medicine Hat*—Fine spring-like weather during May. A good rainfall with bright warm days has pushed vegetation rapidly. Feed plentiful; stock and crop conditions all that could be desired. *Swift Current*—Rainy month. No damage done around here; prairie green; good prospects for hay. *Regina, Assiniboia East*—Frequent rains interfered somewhat with seeding; the grain is well advanced now; conditions most favourable for growth. *Crescent Lake*—Seeding done by 24th; grain doing well; land very wet; sloughs wet. *Abernethy*—Growth backward; crops covering ground. *Manor*—Crops coming on fast. *Crane Lake*—Crops and gardens backward. *Stirling*—Crops growing fine. *Lethbridge*—Thunder storms frequent; no damage to crops; season backward. *Qu'Appelle*—Grain well advanced; trees in full leaf; all migratory birds here; growth rapid.

JUNE.—*Prince Albert*—Crops which have been backward are now doing well with favourable weather; river still very high; roads improving. *Regina*—Month marked by cool weather all over the Territories, and frequent heavy rain in country between Calgary and Wetaskiwin has interfered with crops. In *Assiniboia* crops reported first-class; in other parts of Territories in fair condition, but somewhat backward. *Battleford*—Month has been cold with frosts on 18th and 20th that damaged garden stuff and potatoes, but it was not at all general; ideal weather for stock. *Calgary*—The extraordinary rainfall of May has been exceeded in June, and in consequence the whole country is like an immense sponge. The weather has been for the greater part cold, and growth has been greatly retarded. Unless hot, dry weather succeeds the outlook for crops is rather dismal. Grass is abundant, but very soft and watery; and although cattle look pretty well they are very soft, and exporting will commence very late. Garden stuff is backward, and altogether the outlook is far from promising. *Medicine Hat*—Cloudy, unsettled weather continued through June, with light rains and occasional low temperatures. Reports from outlying districts continue satisfactory, and feed is plentiful. *Qu'Appelle*—Weather has been cold, but growth is rapid and prospects for abundant crops bright. *Swift Current*—Rain daily, with exception of eight days out of the thirty; total amount of rainfall about five inches; temperature reached 80 degrees on one day only; snow on 3rd; hail on 3rd and 19th; frequent thunder storms; country very backward; although large hay crops expected.

JULY.—*Prince Albert*—Fine weather for crops which are doing well. *Calgary*—July weather has been only fair and, with the amount of rain

that has fallen, it has been too cool for the proper development of the crops which are only middling and about two weeks late, which renders ripening improbable. Grass is abundant, but it is not maturing quickly enough to ensure a crop of good hay. Cattle generally are fat, but are too soft yet to export profitably. Vegetable and garden stuff is late. *Edmonton*—Weather continues most favourable for crops; hay plentiful; grain headed out, but ten days later than last year; root crop good. *Battleford*—Haying general, but impeded by rain; crops splendid. *Medicine Hat*—Crop conditions continue excellent; a plentiful crop of hay harvested. *Swift Current*—Very little rain since the 8th; good weather for crops; everything looking fine; hay plentiful; stock in splendid condition. *Regina*—July weather has been generally warm and bright with little precipitation; very little thunder or hail, most favourable for crops throughout the Territories. *Qu'Appelle*—Weather very favourable for crops; magnificent harvest expected.

AUGUST.—The weather in the Territories during August was exceedingly favourable for ripening crops, and reports from nearly all districts except Alberta are optimistic. *Calgary*—August has not, generally speaking, been a very satisfactory month; although a good deal of warm weather prevailed there were many cool nights which, together with a rainfall of 5.20 inches in about 54 hours, have kept grass green and crops from ripening, so that very little grain has been cut in this locality yet. The heavy rain for two days caused another flood, the third one of the season, and which again caused a great deal of damage. Towards the end of the month the thermometer dropped to the freezing point for two nights in succession, but no damage has been reported. Crops are abundant this year. *Edmonton*—Weather not favourable for ripening crops; cutting scarcely commenced; hay and root very large crop. *Battleford*—Harvesting well advanced; crops of all kinds excellent; severe hail storm on 3rd, but little damage done. *Prince Albert*—Weather favourable for crops; harvesting general; no frost. *Medicine Hat*—Fine weather throughout August; hay and grain harvest nearly finished; heavy shipments of stock are being made. *Swift Current*—Good weather throughout the month; no frost; feed plentiful; grass curing well; stock in good condition. *Qu'Appelle*—Light frost reported in some localities; cutting general, and excellent yield expected. *Regina*—August weather generally has been bright and warm and most favourable to crops; no frost and little hail; in *Eastern Assiniboia* warm, with showers; one or two heavy rains in western part; harvest in full swing.

SEPTEMBER.—*Edmonton*—Thresher reports show yield average, and sample above average; weather favourable for stacking and threshing; rest of crops above average. *Battleford*—Some rain and much wind rather impeded the saving of the crops, but they are all cut now and turning out very heavy. *Prince Albert*—Crops all in without damage from frost. *Medicine Hat*—Continued fine weather throughout September; harvest work finished, and threshing nearly so; stock shipments continue large; cattle going off in prime condition. *Swift Current*—Heavy killing frosts on the 26th. *Calgary*—The weather for the most part has been favourable for harvesting operations, and large quantities of grain have ripened that would certainly have been lost had the average September weather of the last few years prevailed. As it is the hardy flowers are still in bloom, and the grass is curing well, while large quantities of excellent hay have been saved; wheat is only a fair crop,

but oats and barley are reported up to the average both in yield and quality; everything promises a favourable fall and winter for the stock interests. *Qu'Appelle*—Crops in this district, although not as heavy as last year, are above the average. Frost during cutting did slight damage; cutting all finished; threshing general and work advancing rapidly.

OCTOBER.—*Calgary*—October has been the most pleasant month of the season since April, with much bright sunshine. Sweet peas, pansies, phlox and other flowers were in bloom in the gardens and spring crocuses were plucked on the prairie on the 31st. Range stock are very fat and grass is well cured and, unless prairie fires occur, the stock interests are assured as a large quantity of good hay has been harvested to protect stock against heavy snow storms or severe weather. Wheat is a poor crop, but oats and barley are yielding well and of good quality. *Edmonton*—Threshing well advanced owing to favourable weather; yield and quality fully up to expectation; large amount of fall ploughing done. *Battleford*—This month has been very favourable for threshing operations; stock in fine condition for winter. *Medicine Hat*—During October we have had exceptionally fine weather, mild and dry throughout the month; prairie feed has cured without a touch of frost; reports from the ranges are very good. *Prince Albert*—Weather continues open making most favourable harvest season ever known in district. *Swift Current*—Exceptionally fine month; mild temperature; no strong winds; little precipitation; small fall of snow on the 25th which quickly cleared away. *Qu'Appelle*—Weather unusually fine; threshing progressing rapidly; about done; grain, fine yield; in many places heavy; farmers getting their grain marketed rapidly.

NOVEMBER.—Perhaps the most striking feature of November weather was that the first half of the month was colder than the second half. On the 4th it became cold and by the 7th very cold, and it was during the following four days that the lowest temperature of the month was recorded; between the 16th and 23rd the weather was exceedingly mild. The following are reports from observers: *Calgary*—Although the temperature fell below zero on one or two occasions the November weather was by no means unpleasant, and, as the cold wave was not accompanied by much wind, the stock interests were not jeopardised thereby and cattle still retain their flesh without any perceptible shrinkage; although there was not at any one time more than 4 inches of snow on the ground Calgary enjoyed ten days of the best sleighing in her history. *Medicine Hat*—Weather continued mild through November; snowfall light; southerly and westerly winds prevailing; food and water both plentiful on the stock ranges. *Edmonton*—Good roads; large quantities of grain being delivered. *Prince Albert*—Snow very deep and roads heavy.

DECEMBER.—*Calgary*—December has been for the most part cold and disagreeable although relieved by occasional chinooks, which unfortunately did not clean off the snow entirely, wet snow remaining which turned to ice, leaving prairie slippery for stock. Still stock is everywhere reported as looking well and very little feeding has as yet been done. Since the first of the month no snow has fallen, and, as streams are mostly frozen up, stockmen are wishing for snow to furnish moisture. *Prince Albert*—Large quantity of snow in country; roads good. *Medicine Hat*—Cold and unsettled weather during the month with some low

temperatures; snow falls heavy in easterly parts of districts; ranges reported in good condition. *Regina*—Very cold 5th to 7th; stormy and cold 23rd to 25th; many mild days; very little snow on the ground on the 31st. *Qu'Appelle*—Grain being marketed freely; prices good: farmers getting through their work quickly on account of fine weather.

HAIL STORMS.

By far the most widespread and disastrous hail storms in the history of agriculture in the Territories occurred on various dates during the month of August in the thickly settled country lying along the line of the Calgary and Edmonton Railway from Ponoka northward. A very large area of crop was practically wiped out of existence, and, as will be seen on reference to the crop statistics (District 12) in another portion of this report, the yield was in consequence very seriously reduced. A conservative estimate places the damage done as represented in money value by a sum not less than \$400,000.00. Other portions of the Territories were more fortunate this year, and, while many bad storms occurred in various places, owing to the fact that they happened for the most part comparatively early in the season and that they were purely local in character, the aggregate damage done in any particular district was not considerable.

The serious annual loss inflicted on the farmers of the Territories by hail storms is one that merits some attention in this report, and for the purpose of obtaining further light on the subject the Department has for the last two years called for special reports from meteorological observers and others, with regard to such hail storms and their accompanying phenomena as come within the scope of their personal observations. So far the information collected goes to show: (1) That the months during which destructive hail storms occur are July and August. (2) That such storms have no uniform direction of movement and are not peculiar to any particular portion of the country. That many of these storms move in an apparently circular direction and are frequently accompanied by considerable electrical disturbance and by winds of cyclonic character and violence. A good deal has been written and said within the last year or two with regard to the attempts made to prevent precipitation of hail in certain of the European vine-growing countries, where the annual destruction from this source has amounted to from \$16,000,000.00 to \$24,000,000.00 a year, by bombarding approaching storm clouds by means of peculiarly shaped cannon, and it may be of interest in this connection to quote here the opinion given to The Orange Judd Farmer in reply to an enquiry by the publishers of that periodical by Mr. Willis L. Moore, Chief of the United States Weather Bureau:

The method of bombarding the clouds to prevent hail storms is undoubtedly based upon popular delusions and has spread throughout Italy, southern Austria and southern France. It is practised by the owners of vineyards and is especially exploited by the firm of Greinitz, Neffen, manufacturers of iron work, Gratz, Austria. The inventor of the apparatus is Mr. Stiger and the method is ordinarily spoken of as the Stiger method. It consists essentially in sending vortex rings of smoke and air upward toward the clouds: but the most powerful Stiger cannon that have yet been employed do not send these rings higher than 1,200 feet above the ground, and therefore utterly fail to reach the

clouds. On this account the distinguished American meteorologist, J. M. Pernter, has maintained that if there is any virtue whatever in the idea, the experimenters must use much more powerful apparatus.

But there is no satisfactory evidence that the cannonading of the vortices had any influence whatever on the hail. Both theory and practice agree in this conclusion. Theoretically, it was imagined by Mr. Stiger that hail is formed in quiet spots in the atmosphere, where the atmospheric moisture could crystallise out in large crystals in a manner analogous to the formation of large crystals of salt in liquid solution. But this is a very foolish notion: there are no such quiet spots in the atmosphere, and hail stones are not crystals, but masses of ice with only a feeble or partial crystalline structure. Even the perfect crystals of the snowflakes are formed in the midst of rapidly moving air, so that the whole theoretical basis for hail storm cannonade falls to the ground.

Practically, it is generally difficult to prove that a specific fall of hail has been especially influenced by the cannonading. Hail storms are generally very local and erratic: some have maintained that they are controlled by the hills and contour of the ground or by the presence of forests or lakes, but, practically, the whole question is one of ascending and descending currents of air that characterise whirlwinds and thunder storms. If in the midst of these complex motions with the resulting rain, there occur here and there patches of hail, it would seem absurd to say that we can put our finger upon the precise influence that caused or prevented hail. If in the midst of a hail storm I fire off a cannon and the hail ceases to fall on my land, but continues to fall on my neighbour's, it would be folly in me to maintain that this is due to the firing of my gun. Nothing but the continued repetition of this phenomenon, under a variety of circumstances, would justify such conclusions.

Now the fact is that in the various reports relative to hail shooting, there has not been a fair presentation of the statistics of the results. Nothing is told us as to where the hail storms come from or go to, nor even whether there were any hail storms, but in most cases the record simply says that a threatening cloud was seen approaching, the cannonade began and continued until the cloud went away—and no hail fell on the region supposed to be protected by the cannon. But this is not all; the last congress on the bombardment of hail utterly refused to entertain reports from those who testified that hail fell in spite of the cannonade. In fact, therefore, reports showing that in no case was the cannonading of any avail had to be published independently.

After examining all that has been published during the past two years, my conviction is that we have to do here with a popular delusion as remarkable as is the belief in the effect of the moon on the weather. The uneducated peasantry of Europe seem to be looking for something miraculous. They would rather believe in cannonading as a means of protection and spend on it abundance of money, time and labour, than adopt the very simple expedient of mutual insurance against the losses that must inevitably occur.

It may be added that in November, 1901, there assembled at Lyons, France, an international congress for protection against hail, which was attended by farmers, meteorologists and scientists from the leading countries of Europe. All the different aspects of the question were fully discussed. While this representative body did not put itself on record as in any way expressing an opinion as to the efficacy of "hail shooting" one of the most important resolutions adopted was "That protection against hail demands the most earnest and attentive study on the part of science." Many of the leading meteorologists of Europe are now engaged in the further prosecution of the subject, so it is reasonable to suppose that within the next few years we may have available some further light on the causations and laws of hail storms, without which knowledge any preventive efforts are likely to prove both ridiculous and abortive.

ANNUAL REPORT 1902

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I.—ANNUAL Precipitation from 1892 to 1902, inclusive.

STATION.	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	Average
Prince Albert..		10.27	9.30	14.14	19.64	19.47	15.79	29.88	22.40	18.12	20.02	17.90
Battleford ..	11.06	10.93	13.47	12.01	12.93	16.53	14.24	18.42	20.41	16.57	13.49	14.55
Edmonton ..	16.85	18.07	16.13	14.68	15.24	14.55	10.91	20.89	27.82	27.41	20.66	18.47
West Beaver Hls.							15.15	22.09	26.41	24.30	22.13	22.01
Calgary	7.91	11.05	10.89	14.79	14.64	21.14	15.79	26.99	17.99	21.98	31.90	17.73
Macleod					12.73	12.77	13.58	17.76	10.08	12.93		13.31
Medicine Hat ..	12.22	14.60	11.52	14.13	18.18	17.27	15.90	22.28	22.05	20.80	13.68	16.60
Swift Current ..	20.25	13.87	9.66	12.29	14.11	16.24	15.25	19.38	14.60	17.64	17.64	15.54
Chaplin		2.91	4.39	5.58	9.66	6.56	6.40	5.89	4.77	4.42	9.22	5.98
Regina					18.90	9.32	13.28	13.22	11.54	20.97	14.35	14.51
Qu'Appelle	16.49	16.35	12.52	15.29	22.10	12.56	21.65	19.25	16.52	27.91	24.17	18.62
Indian Head ..						16.15	20.63	14.33	15.46	23.01	14.73	17.38

II.—MONTHLY PRECIPITATION.—1902.

STATION.	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
Abernethy				0.62	5.35	4.08	1.59	0.56	0.67	S	0.23		
Alameda					3.52	5.02	0.72	2.21	0.28	0.72			
Banff	1.75	0.55	1.37	0.54	7.63	5.12	3.14	2.91	2.71	1.72	1.68	1.47	30.59
Battleford	0.10	0.66	1.15	0.32	3.08	2.35	2.30	1.26	0.41	0.14	1.26	0.46	13.49
Bon Accord							5.81	3.26	0.37	0.49	1.85	1.00	
Broomhill	0.23	0.25	0.57	0.47	2.16	9.66	4.70	5.45	1.50	0.70	1.10	0.20	26.99
Bruderheim	0.12	0.80	0.35	0.61	6.83	1.26	5.82	3.49	1.23	0.65	1.05	0.20	22.41
Calgary	0.40	0.60	0.62	0.60	8.90	8.82	5.06	6.40	1.57	0.61	0.39	0.60	34.57
Calgary (Ex. Stn)	0.27	0.45	0.40	0.67	8.05	9.88	5.29	5.09	1.47	0.81	0.91	0.85	34.14
Cardston							1.24	1.35					
Chaplin	0.13	1.30	0.73	0.06	2.27	1.60	1.47	0.23	0.23	0.00	0.20	1.00	9.22
Crane Lake	0.30	0.33	0.28	0.44	4.30	4.77	2.04	1.14	0.46	0.18	0.65		
Crescent Lake ..	0.15	1.04	2.15	0.56	4.92	3.97	2.43	1.52	0.25	0.12	1.19	1.72	20.02
Coutts	0.35	1.10	0.82	0.00	4.35	7.53	5.40	1.15					
Dirt Hills	0.20	1.65	0.20	1.64	4.41	7.18	3.10	0.90	0.80	0.00	0.27	0.20	20.55
Didsbury	0.10	0.80	0.05	0.10	6.01	7.93	3.93	3.94	1.25	0.12	0.70	0.20	25.13
Duck Lake				0.10	3.86	4.54	4.13	1.55	1.33	S	1.20	0.15	
Estevan	0.10	1.65	2.78						0.20	0.68	0.68	1.06	
Edmonton	0.42	0.80	0.22	0.69	7.67	1.95	3.74	1.72	1.28	0.30	0.82	1.05	20.66
Gatesgarth	0.10	0.38	0.85	0.40	4.10	5.23	2.96	0.88	0.57				
Grenfell	S	1.60	2.85	1.45	2.72	3.97	0.85	1.88	0.32	0.07	0.72	1.90	18.33
High River									1.59	0.06	0.75	0.45	
Indian Head	0.00	1.40	1.35	0.07	3.37	4.96	0.67	0.59	0.42	0.00	0.60	1.30	14.73
Innisfail	0.12	0.81	0.13	0.02	5.98	4.96	4.89	3.94	0.72	0.02	0.88	0.10	22.57
Knee Hill				0.47	6.11	5.49	2.21	2.21	0.81	0.51			
Lethbridge	0.87	1.04	0.48	0.02	11.28	5.68	5.95	0.69	0.84	0.02	0.43	0.84	28.14
Manor						4.45	2.50	3.80	0.20	0.52		1.40	
Macleod	0.48	0.55	0.63	0.20	2.65	2.90	1.20	0.22	0.51	0.04			
Medicine Hat	0.98	0.65	0.20	0.10	3.18	3.17	2.04	0.80	0.22	0.39	0.80	1.15	13.68
Melfort	0.85	1.20	1.19	0.40	3.92	4.06	6.25	3.39	2.22	0.30	2.05	0.10	25.93
Moose Jaw	0.10		0.85	0.42	1.82	4.32	2.17	0.49	0.34	R			
Moosomin						1.44	3.02	0.28	0.61	1.14	0.54		
Pakan						4.91	3.03	1.10	0.45	0.85	0.50		
Pincher Creek ..	0.35	0.65	1.58	0.85	8.22	5.69	5.40	1.48	1.87	0.15	0.17	1.16	27.57
Prince Albert ..	0.26	0.98	1.05	0.60	4.87	4.19	2.16	1.98	0.63	0.13	3.06	0.11	20.02
Qu'Appelle	0.26	2.85	3.52	1.31	6.95	4.34	0.95	1.34	0.66	0.10	1.05	0.84	24.17
Red Deer	0.08	0.33	0.53	0.36	7.52	4.24	3.54	2.06	1.32	0.10			
Regina	0.06	0.56	0.70	0.60	6.30	4.40	1.00	0.60	0.50	R	0.11	0.09	14.92
Regina (2)	0.43	0.63	0.61	0.55	3.41	3.69	1.42	0.77	0.53	0.00	0.16	0.23	12.46
Saltcoats	0.40	1.70	0.30	3.80	5.15	2.03	0.60	0.65	0.09	1.10	1.70		
Saskatoon	0.00		0.09	2.76	3.47	2.93	0.75	0.61	0.07	0.95	0.15		
Stirling	0.20	1.20		8.81	6.60	4.95	1.28	0.56			1.00	1.00	
Swift Current ..	0.17	0.88	1.38	0.18	5.07	4.47	2.28	1.44	0.73	0.08	0.60	0.36	17.64
Threehills Creek											1.05	0.44	
W. Beaver Hills ..	0.30	0.90	0.32	0.80	7.70	2.10	4.39	1.92	1.26	0.23	1.42	0.79	22.13
Wetaskiwin											1.21	0.86	
Weyburn	0.20	3.00	2.85	1.53	3.76	8.10	1.51	3.86	0.38	0.16	0.48	1.30	27.13
Whitewood					4.69	5.64	1.41	0.88	0.00	0.04	0.48	1.60	

DEPARTMENT OF AGRICULTURE

III.—TEMPERATURE, 1902..

STATION.	JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.				
	Mean.	Max.	Min.	Date of Min.	Mean.	Max.	Min.	Date of Min.	Mean.	Max.	Min.	Date of Min.	Mean.	Max.	Min.	Date of Min.	Mean.	Max.	Min.	Date of Min.
Abnethy																				
Alameda																				
Banff	13.7	41.3	-11.0	31	21.0	47.2	-25.6	1	22.6	41.4	-23.3	16	36.0	72.0	32.0	2	55.8	86.8	32.0	26
Battleford	3.5	40.3	-29.0	31	7.0	43.6	-32.0	3	17.8	41.0	-19.0	17	35.4	53.0	23.0	6	51.3	84.8	24.9	4
Bon Accord																				
Bon Accord																				
Calgary	13.1	45.0	-27.0	26	9.2	45.0	-30.0	2	24.9	45.0	-15.0	15	39.9	62.0	30.0	9	53.2	89.0	30.0	27
Calgary	20.3	54.0	-30.0	25	15.2	46.7	-18.0	9	25.9	50.0	-24.0	16	39.7	65.0	25.0	1	49.0	82.0	25.0	4
Calgary Exp. Stn.	20.2	55.0	-32.0	25	14.5	49.9	-20.0	9	25.9	51.0	-24.0	16	39.7	65.0	25.0	1	49.0	82.0	25.0	4
Crane Lake	18.2	52.0	-28.0	25	17.3	52.0	-21.0	3	29.0	54.0	-17.0	17	40.3	68.0	25.0	11	53.8	88.0	31.0	4
Drumheller	17.0	38.0	-33.0	27	5.9	38.0	-31.0	4	16.8	41.0	-29.0	17	34.0	63.0	25.0	11	51.3	80.0	34.0	4
Drumheller																				
Duck Lake																				
Drumheller																				
Estevan	10.5	46.0	-20.5	27	6.2	36.0	-31.5	4	19.8	41.0	-21.5	17	33.4	60.0	27.0	7	51.8	86.2	27.0	4
Estevan	17.4	45.0	-30.0	24	16.0	46.0	-15.0	6	21.9	51.0	-26.0	16	41.8	73.0	23.0	1	53.1	86.0	28.0	4
Edmonton	9.3	41.0	-28.0	26	6.7	39.0	-29.0	3	18.9	42.0	-23.0	17	37.4	70.0	10.0	2	52.9	88.0	28.0	8
Galt	7.7	40.0	-33.0	27	8.6	35.0	-30.0	4	19.0	38.0	-23.0	17	34.4	64.0	5.0	1	51.5	82.0	26.0	10
High River																				
High River	10.1	40.0	-35.0	26	6.9	39.0	-30.0	4	19.5	42.0	-24.0	17	35.3	67.0	5.0	1	52.7	88.0	27.0	9
Ingleton																				
Ingleton	25.4	62.4	-20.0	25	13.7	41.2	-26.0	9	23.0	50.0	-32.4	16	37.4	66.0	10.0	8	48.1	82.4	21.0	4
Letbridge																				
Letbridge																				
Manor																				
Manor	23.7	58.0	-30.0	25	19.7	51.0	-22.0	9	29.4	54.0	-27.0	16	41.6	65.0	15.0	11	52.2	81.0	32.0	9
Medicine Hat	20.4	57.3	-32.0	25	16.0	45.4	-18.0	6	31.2	53.8	-13.5	16	44.2	70.5	15.7	1	56.0	86.5	29.7	5
Melfort	4.4	38.0	-39.9	27	5.9	41.0	-33.0	2	20.7	45.0	-16.0	17	37.3	66.0	12.0	2	50.4	85.0	26.0	8
Mooson	11.6	46.0	-25.0	26	7.4	41.0	-27.0	3	20.7	45.0	-16.0	17	37.3	66.0	12.0	2	52.6	90.0	24.0	8
Mooson																				
Mooson																				
Oonipuk	-1.9	29.0	-48.5	27	2.5	38.5	-37.0	1	16.3	49.0	-34.0	17	30.7	62.0	4.0	6	47.2	76.5	16.5	9
Oonipuk	22.5	55.0	-33.0	25	21.9	53.0	-19.0	4	26.6	49.0	-27.0	16	38.9	61.0	11.0	1	48.8	84.0	29.0	5
Pincher Creek	6.2	39.0	-37.5	26	9.3	46.0	-28.5	4	16.9	42.0	-29.5	17	35.5	65.6	8.0	6	51.5	87.5	28.0	8
Prince Albert	11.7	40.1	-33.6	26	9.4	41.2	-27.2	4	20.2	41.5	-25.0	17	36.1	66.2	5.2	2	53.8	85.5	27.0	8
Qu'Appelle	20.5	54.2	-26.0	24	16.3	48.2	-12.2	3	23.8	50.0	-23.4	16	39.7	62.0	17.3	3	49.6	80.0	29.4	4
Red Deer	9.6	41.0	-28.0	29	7.1	39.0	-28.0	2	18.0	38.0	-27.0	17	34.9	65.0	6.0	2	52.1	88.0	25.0	8
Regina	9.7	38.5	-31.4	27	4.6	39.5	-35.8	3	25.4	47.0	-12.0	16	40.5	65.4	8.5	2	52.7	86.3	27.0	5
Saskatoon	16.9	51.0	-23.0	28	13.0	42.0	-25.0	3												
Swift Current																				
Therules Creek																				
Therules Creek																				
Therules Creek																				

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III.—TEMPERATURE, 1902.—Continued.

STATION.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Mean	Max	Date of Min	Mean	Max	Date of Min	Mean	Max	Date of Min	Mean	Max	Date of Min	Mean	Max	Date of Min	Mean	Max	Date of Min
	Min	Max	Min	Min	Max	Min	Min	Max	Min	Min	Max	Min	Min	Max	Min	Min	Max	Min
Abenethy	60.1	88.8	30-0	61.5	91.8	34-0	49.2	79.8	18-0	38.1	75.8	5-0	18.8	57.9	12-0	1.48	51.0	27-0
Alameda	63.5	85.8	41-0	61.8	89.8	26-0	49.8	82.0	17-0	39.7	73.0	18-0	21.9	67.0	5-0	1.48	51.0	27-0
Barfield	58.1	81.8	34-6	54.2	83.5	27-0	45.3	80.4	13-0	40.4	63.0	22-0	22.5	37.4	14-5	3.7	38.3	25-7
Battleford	61.8	86.0	43-0	63.3	86.0	40-0	51.2	80.0	24-0	41.8	80.0	16-0	15.3	42.0	24-0	0.7	38.0	33-5
Bon Accord	59.2	88.0	38-2	58.7	85.3	34-2	48.8	79.8	18-5	43.7	78.0	13-0	18.3	46.5	25-0	3.7	44.9	38-5
Chaplin	64.5	90.0	40-0	68.1	92.0	30-0	48.9	77.0	26-0	43.5	75.0	22-0	26.2	52.0	8-0	1.9	30.0	27-0
Calgary	58.1	84.0	38-0	58.1	81.0	31-0	48.7	74.9	24-0	44.1	74.4	19-5	21.8	49.0	16-0	11.4	47.0	26-8
Calgary Exp. Sta.	59.0	82.9	36-0	57.6	83.9	31-0	47.0	74.9	24-0	44.1	74.4	19-5	21.8	49.0	16-0	11.4	47.0	26-8
Crane Lake	62.2	94.0	42-0	63.1	89.0	31-7	46.3	78.0	17-0	38.7	70.0	9-0	19.5	50.0	13-0	1.6	20.0	40-0
Crane Lake	63.2	94.0	38-0	63.1	89.0	28-0	47.8	78.0	24-0	38.7	70.0	9-0	19.5	50.0	13-0	1.6	20.0	40-0
Dinosaur	63.2	91.0	38-0	59.1	89.0	28-0	46.7	73.0	26-0	38.9	75.0	16-5	13.8	51.0	25-0	1.6	20.0	40-0
Duck Lake	60.2	85.7	39-5	61.3	86.3	40.5	46.7	73.0	26-0	38.9	75.0	16-5	13.8	51.0	25-0	1.6	20.0	40-0
Edmonton	61.1	87.0	41-0	60.0	81.0	34-0	49.4	77.0	27-5	41.3	75.5	11-0	11.8	41.5	21-0	4.4	33.0	37-0
Edmonton	62.0	90.0	33-0	62.7	93.0	33-0	50.9	85.0	17-0	44.2	80.0	22-0	19.3	50.5	22-0	0.3	39.0	35-0
Galt	62.3	87.0	36-0	62.3	89.0	37-0	45.3	78.0	24-0	41.6	77.0	17-0	21.1	55.0	15-0	0.4	33.0	32-0
High River	62.7	87.0	36-0	62.6	90.0	35-0	49.7	77.0	21-0	43.1	71.0	10-0	20.8	54.0	9-0	2.1	30.0	35-0
Lake Head	56.7	84.0	42-2	56.2	81.0	35-4	45.5	74.6	16-0	39.1	74.0	9-5	16.4	50.0	10-0	0.1	32.0	34-0
Lehrbridge	61.2	89.8	40-0	62.0	87.8	31-9	48.9	80.0	20-0	48.8	82.4	18-8	27.4	39.0	1-4	13.9	52.5	20-7
Manor	62.6	89.0	42-0	63.0	93.0	33-2	50.2	85.0	27-7	47.9	79.0	17-7	26.3	56.0	3-4	11.8	41.0	29-8
Medicine Hat	64.4	96.0	44-2	66.5	93.0	33-2	53.7	80.0	27-7	37.9	72.0	12-0	14.4	46.0	17-5	2.5	33.0	31-0
Melfort	60.3	86.0	40-0	60.8	83.5	40-0	47.3	75.0	16-5	40.6	76.0	13-0	21.5	50.0	14-0	0.7	34.0	37-0
Moosomin	61.3	90.0	35-0	62.3	91.0	29-0	49.3	80.0	20-0	39.1	70.3	13-0	19.3	53.0	10-1	0.1	38.0	37-0
Moosomin	64.4	90.0	40-5	61.9	86.0	35-6	47.3	78.0	18-0	39.1	70.3	13-0	19.3	53.0	10-1	0.1	38.0	37-0
Conkur	63.8	86.5	43-0	62.9	86.5	35.5	47.9	72.5	27-0	38.0	67.5	15-0	16.4	41.0	21-0	3.5	36.0	35-0
Pincher Creek	58.1	85.0	38-0	57.9	82.0	33-0	50.6	77.0	23-0	47.0	72.0	14-0	25.8	47.0	4-0	18.7	40.0	23-0
Prince Albert	61.7	82.6	43-0	61.7	82.6	43-0	50.6	77.0	23-0	47.0	72.0	14-0	25.8	47.0	4-0	0.1	40.0	36-0
Qu'Appelle	62.5	84.5	36-0	62.9	88.3	37-0	51.3	78.0	23-2	44.8	74.5	16-5	22.2	49.8	9-0	3.3	35.2	30-0
Red Deer	58.2	81.8	43-0	57.9	77.0	35-4	49.0	74.0	26-2	44.8	74.5	16-5	19.3	53.1	14-0	13.6	47.6	21-7
Regina	60.7	80.0	31-0	61.6	90.0	28-0	48.6	81.0	20-0	38.3	75.9	11-0	14.1	54.8	23-0	0.1	33.0	39-0
Saskatoon	59.2	84.0	36-0	60.4	90.1	35-0	47.5	78.5	23-6	38.2	76.5	11-2	19.3	54.8	23-0	5.0	30.8	37-8
Swift Current	62.7	88.0	41-0	63.1	88.0	32-6	52.2	82.0	25-0	44.1	78.0	15-8	23.8	50.0	6-0	9.9	39.0	22-0
Threehills Creek	59.4	88.7	37-4	56.9	82.4	30-2	47.7	75.2	21-2	42.7	75.2	15.8	18.4	49.1	21-1	14.6	50.0	48-4
Wetaskiwin	60.2	85.7	39-5	61.3	86.3	40.5	46.7	73.0	26-0	38.9	75.0	16-5	13.8	51.0	25-0	4.9	38.0	33-0

IV.—LATITUDE, Longitude and Elevation of Meteorological Stations in the North-West Territories.

STATION	LAT. N.		LONG. W.		ELEVATION ABOVE SEA LEVEL	STATION	LAT. N.		LONG. W.		ELEVATION ABOVE SEA LEVEL
	Deg	Min	Deg	Min	Feet		Deg	Min	Deg	Min	Feet
Alameda	49	15	102	17	1,892	Macleod	49	44	113	24	3,128
Banff	51	10	115	35	4,542	Manor	49	43	102	2	2,064
Buttleford	52	41	108	20	1,620	Medicine Hat	50	1	110	37	2,161
Calgary	51	2	114	2	3,389	Melfort	52	47	104	30	1,515
Chaplin	50	27	106	40	2,202	Moose Jaw	50	21	105	35	1,745
Crane Lake	50	0	109	50	2,516	Moosomin	50	0	101	37	1,884
Countts	49	1	111	58	3,463	Oomkup	53	30	101	20	
Didsbury	51	30	114	8	3,300	Pincher Creek	49	11	114	0	3,750
Duck Lake	52	54	106	9	1,645	Prince Albert	53	10	106	0	1,432
Edmonton	53	33	113	30	2,158	Qu'Appelle	50	30	103	47	2,115
Estevan	49	12	103	4	1,858	Red Deer	52	15	113	30	2,795
Gatesgarth	50	20	105	0	1,879	Regina	50	27	104	37	1,885
Grenfell	50	23	102	53	1,957	Saltcoats	51	1	102	8	1,714
High River	50	35	113	52	3,394	Saskatoon	52	15	106	30	1,571
Indian Head	50	28	103	40	1,924	Swift Current	50	20	107	45	2,439
Innisfail	52	2	113	57	3,087	Wetaskiwin	53	00	113	20	2,480
Kneehill	51	55	103	0		Weyburn	49	42	103	54	1,847
Lethbridge	49	40	112	50	2,982	Whitewood	50	20	102	15	1,966

V.—MEAN Daily Temperature, Total Precipitation and Crop Yields, by Districts 1898—1902.

DISTRICT	MEAN DAILY TEMPERATURE				TOTAL PRECIPITATION				YIELD PER ACRE		
	Sept-Oct		Nov-Mar		Apr-June		July-Aug		Wheat	Oats	Barley
	Sept-Oct	Nov-Mar	Sept-Oct	Nov-Mar	Sept-Oct	Nov-Mar	Apr-June	July-Aug			
1. { 1898..... 1899..... 1900..... 1901..... 1902.....	51.4 41.9 44.5 47.4 46.5	7.58 4.63 10.33 8.20 14.90	48.0 47.3 55.6 50.3 47.4	61.6 62.4 65.2 63.6 62.8	1.10 6.06 2.62 5.22 1.66	3.45 5.00 2.75 4.90 5.28	5.10 7.89 1.53 7.44 3.32	5.22 2.96 5.82 5.90 2.07	15.93 15.73 6.92 20.58 20.51	19.63 30.50 33.64 38.04 41.83	24.16 20.55 23.64 30.05 25.60
2. { 1901..... 1902.....	45.6	15.69	52.0 47.7	63.4 62.6	..... 1.76	8.20	7.59 3.57	2.90 1.90	21.94 24.64	42.17 39.27	19.00 28.02
3. { 1898..... 1899..... 1900..... 1901..... 1902.....	50.5 43.1 47.2 44.5	7.74 4.14 8.25 9.38 12.20	48.1 54.7 51.2 45.9	62.6 62.9 63.5 62.7	1.04 1.54 6.12 2.48	1.50 2.85 3.60 2.65	3.60 1.20 9.75 11.78	6.66 9.10 4.68 2.29	16.00 16.49 7.91 24.50 20.93	27.99 26.28 9.32 32.38 36.33	22.99 20.35 9.96 27.94 27.27
4. { 1898..... 1899..... 1900..... 1901..... 1902.....	50.2 43.5 44.6 47.2 45.8	7.77 4.05 11.50 9.36 14.60	49.4 45.6 55.2 51.5 46.8	63.4 62.5 63.4 64.4 62.5	0.82 4.72 3.10 3.90 5.51	3.70 12.15 3.45 4.80 5.45	5.82 7.95 2.92 8.79 9.71	6.58 2.04 5.36 6.30 2.09	18.17 18.75 7.65 28.47 23.13	26.05 29.86 14.70 60.72 35.28	19.59 23.15 15.11 35.12 28.41
5. { 1898..... 1899..... 1900..... 1901..... 1902.....	50.6 44.0 44.8 45.7 45.3	7.97 4.19 14.00 9.80 14.32	50.5 45.5 55.9 47.8 47.0	63.5 62.2 63.8 64.6 61.8	1.12 2.44 1.96 3.29 3.48	3.10 11.90 3.40 3.25 1.72	3.48 8.31 2.43 7.23 8.81	4.92 2.60 4.40 6.02 2.57	20.99 26.65 11.81 28.78 25.20	24.05 35.19 15.45 52.05 30.18	18.99 21.33 10.03 41.91 32.56
6. { 1898..... 1899..... 1900..... 1901..... 1902.....	51.5 47.2 49.4 47.9 48.5	15.9 11.6 22.1 19.9 23.2	51.1 48.3 57.6 51.9 50.5	67.7 63.3 64.7 66.4 63.7	3.44 2.50 2.02 3.30 3.46	6.20 4.00 2.75 4.75 2.68	3.93 6.30 4.32 7.26 8.56	4.64 8.54 6.44 4.52 3.25	17.85 36.85 32.20 36.10 21.60	44.00 50.82 28.82 45.22 49.96	36.90 44.76 9.38 40.70 42.00

V.—MEAN Daily Temperature, Total Precipitation and Crop Yields, by Districts 1898—1902.—Continued.

DISTRICT	MEAN DAILY TEMPERATURE				TOTAL PRECIPITATION				YIELD PER ACRE		
	Nov-Mar		Ap'l-June		Nov-Mar		Ap'l-June		Wheat	Oats	Barley
	Sept-Oct	Nov-Mar	Ap'l-June	July-Aug	Sept-Oct	Nov-Mar	Ap'l-June	July-Aug			
7. { 1901 { 1902	44.8	11.0	45.1	60.5	2.54 3.41	4.35 3.77	7.67 9.58	3.68 3.29	25.30 24.01	47.26 44.20	46.36 29.45
8.					<i>Unsettled</i>						
9 { 1898 { 1899 { 1900 { 1901 { 1902	47.1	6.44	47.1	62.2	3.52	7.60	3.66	3.70	17.65	18.69	22.00
	47.0	1.77	44.1	59.4	3.42	4.05	7.17	10.48	15.27	29.10	21.10
	44.2	9.32	53.1	61.2	4.16	3.75	11.37	7.58	17.02	27.86	22.73
	45.4	6.69	52.6	62.3	3.14	4.00	7.23	4.82	22.71	38.33	29.52
10. { 1898 { 1899 { 1900 { 1901 { 1902	44.7	11.65	45.7	60.7	3.77	3.03	8.21	5.78	21.42	30.54	28.16
	48.3	5.64	49.4	63.9	2.46	4.05	6.27	2.66	20.33	22.00	30.66
	44.4	4.04	46.3	66.7	1.28	2.15	6.69	6.52	17.08	22.50	27.53
	45.3	10.90	54.3	61.6	2.66	2.90	6.69	9.44	20.02	24.58	34.22
11 { 1898 { 1899 { 1900 { 1901 { 1902	46.0	10.10	50.7	63.4	2.12	2.75	7.23	4.02	25.08	46.45	37.67
	45.0	13.92	48.2	62.5	3.41	2.71	5.75	3.50	22.54	44.67	32.60
					<i>Unsettled</i>						
12. { 1898 { 1899 { 1900 { 1901 { 1902	48.8	14.9	51.3	62.9	1.24	4.45	3.03	2.84	26.10	31.02	46.53
	44.1	13.2	46.9	58.7	1.88	2.45	6.90	8.78	25.02	20.46	42.87
	40.7	18.1	53.8	57.7	2.22	4.85	9.09	8.08	18.78	24.22	32.15
	44.3	21.1	49.2	61.4	4.32	4.05	6.12	1.82	24.88	42.03	35.21
13 { 1898 { 1899 { 1900 { 1901 { 1902	46.3	20.1	48.7	59.9	5.17	3.07	9.87	7.63	17.09	28.97	21.59
14 { 1898 { 1899 { 1900 { 1901 { 1902	48.8	14.9	51.3	62.9		5.05	8.25	16.00	22.25	28.75	41.25
	44.1	10.6	45.8	57.8		3.10	9.33	7.32	19.05	31.08	42.96
	45.6	19.8	52.6	56.9	3.16	2.82	11.22	8.06	18.55	27.20	37.11
	43.7	22.0	48.0	60.1	4.72	2.12	12.12	5.60	22.69	30.51	35.27
15 { 1898 { 1899 { 1900 { 1901 { 1902	46.1	23.2	46.2	58.0					18.91	30.92	21.41
16 { 1898 { 1899 { 1900 { 1901 { 1902	45.8	14.1	47.7	62.2	2.54	4.15	2.70	5.26	26.00	34.83	46.50
	44.4	11.9	44.0	57.7	1.50	3.35	6.93	13.06	17.70	23.53	44.42
	44.7	21.9	50.6	56.7	3.41	2.30	8.97	5.48	18.01	23.70	37.06
	42.8	26.6	47.2	59.1	4.86	3.10	9.84	6.10	14.78	29.50	20.77
17 { 1901 { 1902	43.9	21.5	45.1	58.8	3.28	1.86	12.36	7.04	25.17	32.60	17.02

15	(1898.. .. .)	47.2	16.8	47.8	62.2	2.06	5.45	5.58	5.26	21.48	35.90	39.66
	(1899)	44.6	14.0	43.9	57.3	0.96	3.35	8.34	11.10	21.31	27.69	41.09
	(1900)	45.2	23.9	51.3	57.6	2.54	2.00	6.45	3.92	21.96	31.66	43.11
	(1901)	47.9	23.1	47.2	59.1	4.91	4.00	9.84	4.88	22.60	41.84	33.98
16	(1902.. .. .)	46.6	23.0	45.7	58.2	2.96	3.33	11.87	10.66	24.02	39.27	20.80
	(1898.. .. .)	52.4	20.1	51.8	68.8	2.32	5.15	3.57	5.14	20.79	31.58	43.22
	(1899)	48.7	16.0	48.7	63.0	2.10	4.30	6.42	7.50	17.89	23.17	37.15
	(1900)	52.6	24.6	58.1	62.1	3.38	3.35	3.39	4.92	22.65	22.44	35.95
	(1901)	47.2	25.1	49.6	64.9	3.92	4.90	9.54	2.02	24.68	35.87	23.96
	(1902)	48.4	27.5	48.6	60.9	2.13	3.09	13.01	5.54	22.17	36.34	23.35

CROP STATISTICS.

This year the Department presents its fifth annual statistical statement of Territorial grain crops, and for the first time it has been considered advisable to strike average yields for each district and for the whole Territories. A feature of the work in 1902 is the appearance of flax as an export crop. As will be seen from the subjoined table, this crop has expanded in one season from one raised for purely local purposes to a production of nearly 160,000 bushels. Although the yield per acre in some districts is small, the showing made is not at all unsatisfactory, especially taking the fact into consideration that in this country the growing of flax is still largely in the experimental stage. With more experience of growing this crop under our peculiar climatological and soil conditions much better results may naturally be expected. For purposes of comparison it may be of interest to give here the results attained with this crop last year in the great flax producing states of the American Union. The Winchester bushel, on which the American averages are calculated, is a trifle smaller than our Imperial bushel and therefore the American yields appear relatively slightly larger than they should be.

FLAXSEED.

STATES AND TERRITORIES	Acreage	Bushels per Acre	Total Yield in Bushels
Wisconsin	41,000	12.1	496,100
Minnesota	667,500	10.4	6,942,000
Iowa	97,500	7.9	770,250
Missouri	65,700	5.0	328,500
Kansas	190,200	6.4	1,217,280
Nebraska	14,500	8.0	116,000
South Dakota	427,500	7.5	3,206,250
North Dakota	2,160,000	7.2	15,552,000
Montana	12,500	9.0	112,500
Idaho	34,500	9.2	317,400
Oregon	2,300	6.8	15,640
California	1,100	15.0	16,500
Oklahoma	19,800	7.7	152,460
Indian Territory	5,600	7.5	42,000
United States	3,739,700	7.83	30,814,661
Canadian North-West Territories	17,067	9.26	158,185

Owing to unfavourable weather conditions in the early part of the season crops were thrown about ten days later than the previous season, and it was entirely owing to the fact that the latter part of the season was so peculiarly dry and favourable that the results have turned out so satisfactory. As it was, slight frost occurred in the large wheat producing sections, which, while it did not damage the grain sufficiently to render any considerable quantity of it unsaleable, had the effect of lowering the grade of by far the largest proportion of it, and no doubt affected the yields to some extent. The yields per bushel generally fall slightly below those of the previous year, but are still well above the average except in districts 12 and 13. In the former the prolonged wet weather caused a practical failure of much crop, and in the latter the destructive hail storms which occurred account for the falling off in yield. Compared with yields during 1902 of the great spring wheat producing states to

the south it will be seen from the figures below that the Canadian North-West has nothing to be ashamed of. The remarks above made with regard to the difference in standard of measurement apply also in this case.

STATES	Acres	Yield per Acre	Bushels
Michigan	33,000	16·9	558,000
Illinois	114,000	18·5	2,109,000
Wisconsin	577,000	17·0	9,809,000
Minnesota	6,091,000	12·3	74,919,000
Iowa	1,152,000	14·9	17,165,000
Kansas	91,000	10·0	910,000
Nebraska	1,125,000	14·5	16,313,000
North Dakota	4,545,000	16·3	75,084,000
South Dakota	4,040,000	12·2	49,288,000
Canadian North-West Territories	625,753	22·3	13,956,850

Up to the 31st of August last 9,437,550 bushels out of a total production in the year 1901 of 12,808,447 bushels of wheat had been inspected out, so that, making due allowance for Territorial requirements in the way of seed, feed and milling grain, practically the whole of the export surplus of the old crop was off farmers' hands before the advent of the new one.

Owing to the extensive purchases during the past year of machinery by individual farmers and threshing syndicates in the Territories, and the exceptionally fine weather that prevailed during the whole of the threshing season, no necessity arose for special action on the part of the Department in the direction of bringing outside threshers in. A few American machines operated in the Moose Jaw district and along the border settlements in Eastern Assiniboia. Probably never in the history of the Territories was the threshing of its immense crops so successfully handled as during the past season. Harvest may be said to have fairly started in the Territories generally by August 25th and threshing was practically completed by the middle of November.

During the year the organisation of the Department's crop reporting service was carried out along the lines laid down in the Annual Report of 1901. It was found necessary, however, to increase the number of correspondents originally suggested to 73. Three schedules containing specific questions with spaces for replies were sent to correspondents during the season, returnable on the 20th July, the first of September, and during the progress of threshing respectively. From information derived from the first two, Crop Bulletins Nos. 1 and 2 were compiled. The former was issued at the end of July and the latter early in September. In these publications the weather conditions likely to have affected crops, which had prevailed in each of the districts during the period covered by the bulletin, were fully set forth and compared with the conditions which existed during the same period of the previous season. The crop condition, expressed as a percentage of that of the same period in 1901, and the expected production compared with the actual production of the previous year, were also given. One thousand copies of Bulletin No. 1 were printed and the demand for these proved so great that the edition was speedily exhausted. Of the second bulletin 1,500 copies were issued and that did not prove at all too many. While this work was undertaken in the face of many disadvantages, the

reporting staff being naturally entirely new to the work, it is worthy of note that the expected production of the various crops dealt with in the Departmental bulletins, as indicated therein, forms a very close approximation to the final figures compiled from actual threshing returns as given below. An estimate coming within 15 per cent. of actual results is considered by business men good and satisfactory; the Department's estimates come well within that mark. A word of praise is due the members of the crop reporting staff for the very prompt, efficient and intelligent way in which they carried out their part of the work. With greater experience better results may confidently be expected, but it is quite apparent that, in order to meet the tremendous expansion in agricultural operations that is now so rapidly taking place under the abnormal influx of immigration, a very large increase in the number of correspondents is imperative if anything like an effective service is to be maintained.

The statistics prepared by this Department are now accepted with confidence by the entire business community and the importance of them to the commercial world is well illustrated by the following paragraph from *The Winnipeg Commercial* :

The recent Manitoba crop bulletin caused a bullish feeling in the New York wheat market owing to ignorance as to the scope of the bulletin and of the geography of Western Canada. It was supposed by the trade that the bulletin covered the whole of Western Canada and the estimate of 50,000,000 bushels was regarded as a reduction of 15,000,000 from previous unofficial estimates. These unofficial statements, however, included the Territorial crop which amounts to about 15,000,000 bushels.

The reports and bulletins issued by the Department are in constant and increasing demand by railway companies, banks, land companies, dealers in implements and in agricultural produce, and others. A very large number of these are now on the mailing list of the Department, but it may be well to point out that the information gathered with so much care and labour is intended for the benefit of the public at large, and that anyone who desires it may have it for the asking, even although as much publicity as possible is given to it through the press of Manitoba and the Territories.

Another phase of the matter is presented by the fact that the Department's figures are now used in all official publications of the Federal Government relating to the Territories, and especially in immigration literature. While under the present constitution of the Territories the powers which, under other circumstances, would naturally be exercised by this Department in relation to immigration do not exist, it may be pointed out that in a quiet way, and without expensive machinery, the Department is carrying on effective work in this direction through its various publications. Hardly a day passes but several letters reach the Department asking for information regarding the climatological conditions to be met with in the different portions of the Territories as well as with respect to the yields of the various crops. Such information is invariably promptly and cheerfully furnished and the Department has good reason to believe, from correspondence on file, that it is very much appreciated by the recipients.

Appended is the usual table showing the actual production, acreage harvested and yield per acre of the principal crops, for each crop district as defined below and for the whole Territories, with figures for previous years.

Crop Districts.

District No. 1—Carnduff, Alameda and South Moose Mountain districts. Area 4,716 square miles. Includes districts adjacent to the lines of the south-western branch of the Canadian Pacific Railway and Pipestone extension (in Territories) and the south Moose Mountain country.

District No. 2—Weyburn and Yellow Grass districts. Area 14,638 square miles. Includes the country adjacent to the Soo line between Rouleau and Estevan and the Wood Mountain country.

District No. 3—Moosomin, Whitewood, Wapella and Broadview districts. Area 3,600 square miles. Includes country adjacent to main line of Canadian Pacific Railway between Fleming and Broadview and the district north-east of Wood Mountain.

District No. 4—Grenfell, Wolseley, Indian Head and Qu'Appelle districts. Area 5,086 square miles. Includes country adjacent to main line of Canadian Pacific Railway and to the Qu'Appelle Valley between Grenfell and Balgonie.

District No. 5—Regina and Moose Jaw districts. Area 15,845 square miles. Includes country adjacent to the main line of the Canadian Pacific Railway Company between Balgonie and Rush Lake and along line of Qu'Appelle, Long Lake and Saskatchewan Railway, as far as Dundurn.

District No. 6—Crane Lake, Maple Creek and Medicine Hat districts. Area 37,720 square miles. Includes country adjacent to main line of Canadian Pacific Railway from Rush Lake to Langevin—almost entirely ranching district.

District No. 7—Yorkton and Saltcoats districts. Area 8,735 square miles. Includes country adjacent to the line of the Manitoba and North-Western Railway between Langdenburg and Yorkton and the country east of Touchwood Hills.

District No. 8—Includes all that portion of the Provisional District of Saskatchewan lying east of the 104th degree of west longitude. It is not yet under settlement. Area 47,904 square miles.

District No. 9—Prince Albert district. Area 29,808 square miles. Includes the country adjacent to the line of the Qu'Appelle, Long Lake and Saskatchewan Railway Company from Saskatoon to Prince Albert and a large unsettled tract.

District No. 10—Battleford district. Area 19,440 square miles. Includes the country adjacent to the valley of the Saskatchewan river in the Battleford and Bresaylor districts with a large unsettled tract.

District No. 11—Includes the western 14 ranges of townships in the Provisional District of Saskatchewan. It is not yet under settlement. Area 16,848 square miles.

District No. 12—Edmonton, Strathcona and Wetaskiwin districts. Area 48,286 square miles. Includes the country adjacent to the line of the Calgary & Edmonton Railway Company from Wetaskiwin north and the settlements along the Saskatchewan Valley; also a large tract of unsettled territory.

District No. 13—Red Deer, Lacombe and Ponoka districts. Area 13,608 square miles. Includes the country adjacent to the line of the Calgary & Edmonton Railway Company, from Red Deer to Wetaskiwin and westward to the Rocky Mountains.

District No. 14—Innisfail, Olds and Didsbury districts. Area

11,412 square miles. Includes country adjacent to the line of the Calgary & Edmonton Railway from Carstairs to Penhold and westward to the Rocky Mountains.

District No. 15—Central Alberta, or Calgary district. Area 14,796 square miles. Includes the country adjacent to the main line of the Canadian Pacific Railway from the western boundary of the Provisional District of Assiniboia to the Rocky Mountains, and to the line of the Calgary & Edmonton Railway from Nanton to Carstairs.

District No. 16—Lethbridge, Macleod and Pincher Creek districts. Area 11,772 square miles. Includes the country adjacent to the line of the Calgary & Edmonton Railway south of Nanton, and to the lines of the Alberta Railway, the Crow's Nest Railway and the St. Mary's River Railway.

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CROP STATISTICS.

DISTRICT AND YEAR	WHEAT				OATS				BARLEY				FLAX		
	Bushels	Acre's ge	Yield per acre	Av'rage yield	Bushels	Acre's ge	Yield per acre	Av'rage yield	Bushels	Acre's ge	Yield per acre	Av'rage yield	Bushels	Acre's ge	Yield per acre
1.	1898.	804,168	50,455	15.93	292,259	14,919	19.63		45,718	1,892	24.16				
	1899.	1,239,759	78,813	15.73	497,148	16,334	30.30		42,685	2,107	20.25				
	1900.	549,936	79,375	6.92	274,504	14,276	19.22	32.43	45,514	1,881	23.64	24.79			
	1901.	2,165,042	105,476	20.58	863,648	22,755	38.01		51,727	1,721	30.05				
	1902.	2,630,470	128,253	20.51	1,280,203	30,610	41.83		87,953	3,435	25.60		81,408	8,878	9.16
2.	1898.														
	1899.	22,000	1,466	15.00	12,000	387	31.00		2,000	80	25.00				
	1900.	4,896	1,682	2.91	1,715	108	15.87	39.05	4	1	4.00	25.83			
	1901.	117,725	5,365	21.94	61,325	1,454	42.17		399	21	19.00				
	1902.	391,738	15,893	24.64	197,399	5,026	39.27		2,971	106	28.02		17,498	2,050	8.53
3.	1898.	1,142,119	71,372	16.00	237,118	8,469	27.99		37,462	1,629	22.99				
	1899.	1,079,784	65,472	16.49	470,828	17,911	26.28		33,755	1,658	20.35				
	1900.	568,254	71,807	7.91	182,572	17,433	9.32	27.52	14,472	1,452	9.96	23.27			
	1901.	2,052,567	84,002	24.50	786,347	24,284	32.38		76,405	2,734	27.94				
	1902.	2,019,954	96,504	20.95	898,280	24,722	36.33		80,453	2,949	27.27		5,932	450	13.18
4.	1898.	1,460,317	80,348	18.17	379,249	14,558	26.05		23,597	1,204	19.59				
	1899.	1,968,666	104,949	18.75	595,496	19,938	29.86		19,866	856	23.15				
	1900.	908,491	118,752	7.65	339,802	24,474	14.76	33.55	15,813	1,056	15.11	24.99			
	1901.	3,862,153	135,675	28.47	1,310,335	21,577	60.72		47,534	1,353	35.12				
	1902.	3,321,647	143,577	23.13	1,171,808	33,205	35.28		39,716	1,394	28.41		1,835	167	10.98
5.	1898.	900,034	42,859	20.99	278,761	11,614	24.05		14,360	756	18.99				
	1899.	1,361,033	51,057	26.65	489,993	13,921	35.19		13,822	648	21.33				
	1900.	871,877	73,806	11.81	255,592	16,539	15.45	32.35	7,509	748	10.03	25.68			
	1901.	2,613,861	90,840	28.78	1,147,176	22,039	52.05		31,396	749	41.91				
	1902.	3,143,577	124,728	25.20	1,351,455	44,778	30.18		35,171	1,080	32.56		15,294	1,269	12.05

CROP STATISTICS.—Continued.

DISTRICT AND YEAR	WHEAT				OATS				BARLEY				FLAX		
	Bushels	Acre'ge	Yield per acre	Average	Bushels	Acre'ge	Yield per acre	Average	Bushels	Acre'ge	Yield per acre	Average	Bushels	Acre'ge	Yield per acre
6.	(1898.....	500	28	17-85	9,800	200	44-00		1,550	42	36-90				
	(1899.....	1,290	35	36-85	28,871	568	50-82		2,104	47	44-76				
	(1900.....	1,578	49	32-20	19,886	690	28-82	45-98	338	36	9-38	36-21			
	(1901.....	7,148	198	36-10	73,358	1,622	45-22		2,646	65	40-70				
7.	(1902.....	4,803	222	21-60	121,970	2,441	49-96		1,764	42	42-00				
	(1898.....	175,328	13,487	13-27	248,868	9,218	27-00		8,454	496	17-20				
	(1899.....	164,609	10,595	15-53	246,913	8,298	29-75		7,640	373	20-52				
	(1900.....	115,975	12,369	9-37	224,943	12,279	18-31	36-33	5,980	443	13-49	26-65			
8.	(1901.....	353,100	13,952	25-30	737,300	15,638	47-26		21,005	453	46-36				
	(1902.....	562,264	23,413	24-01	1,081,758	24,471	44-20		41,685	1,415	29-45		17,279	2,749	6-28
					Not yet	under	settle ment								
9.	(1898.....	283,925	17,002	17-65	127,205	6,840	18-69		49,803	2,275	22-00				
	(1899.....	238,849	15,632	15-27	164,527	5,655	29-10		37,539	1,834	21-10				
	(1900.....	400,616	23,535	17-02	269,344	9,303	27-86	30-46	59,250	2,607	22-73	25-63			
	(1901.....	760,969	33,508	22-71	496,280	12,977	38-33		121,594	4,118	29-52				
10.	(1902.....	1,005,498	46,923	21-42	811,888	26,581	30-54		106,418	3,778	28-16		14,463	1,131	12-77
	(1898.....	14,049	702	20-33	16,152	538	30-66		1,915	87	22-00				
	(1899.....	7,518	440	17-08	12,472	453	27-53		1,193	53	22-50				
	(1900.....	24,028	1,165	20-62	36,653	1,071	34-22	38-85	1,942	79	24-58	27-43			
11.	(1901.....	23,504	937	25-08	42,037	945	46-45		1,997	52	37-67				
	(1902.....	30,379	1,347	22-54	61,035	1,366	44-67		2,561	76	32-60				
					Not yet	under	settle ment								
12.	(1898.....	627,201	24,122	26-10	1,115,358	24,246	46-53		213,103	6,551	31-02				
	(1899.....	690,642	27,604	25-02	1,406,864	32,802	42-87		120,389	4,569	26-46				
	(1900.....	443,423	23,699	18-78	1,476,913	45,930	32-15	37-07	123,643	5,101	24-22	27-53			
	(1901.....	619,385	24,899	24-88	2,760,901	65,679	42-03		292,712	8,311	35-21				
13.	(1902.....	496,762	29,067	17-09	1,809,337	62,454	28-97		271,438	12,568	21-59		1,636	121	13-52
	(1898.....	27,432	1,246	22-25	134,853	3,290	41-27		17,268	617	28-75				
	(1899.....	30,647	1,608	19-05	163,450	3,804	42-96		23,876	768	31-08				
	(1900.....	34,152	1,840	18-56	389,395	10,492	37-11	36-11	59,268	2,179	27-20	26-85			
14.	(1901.....	45,963	2,025	22-69	524,580	13,275	39-51		69,833	2,171	35-27				
	(1902.....	25,668	1,357	18-91	582,131	18,821	30-92		63,879	2,982	21-41		317	50	6-32

NOXIOUS WEEDS.

While the area of abandoned lands is rapidly decreasing it cannot be expected that there will yet be much diminution in the amount annually expended for the destruction of weeds thereon. This should rather be regarded as a valuable opportunity of doing more effective work on what areas still remain abandoned. The expenditure on the destruction of weeds on abandoned lands during the past season has been about \$725.00. The benefit of early inspection having been demonstrated by past experience, the inspectors of districts known to be infested with early ripening weeds were instructed to begin work on the 24th May. Other inspectors went into the field on 2nd June and some later, as might best suit the conditions existing in the various localities. They were all instructed first, to devote a few days to a rapid inspection of farms known to be badly infested with weeds, and follow this up by a more thorough inspection at a later date. The time allotted each inspector, however, has been entirely insufficient to do justice to the work and reflections are consequently frequently cast on the efficiency of the system and the inspectors, in the press and elsewhere. The number of inspectors in the field was increased to 35, one additional having been given to Assiniboia and one to Alberta, but as the staff was increased at the expense of the time hitherto allotted other inspectors, results were not entirely satisfactory. The call is urgent for several additional inspectors in Alberta. I might especially mention the Lethbridge, Calgary, Olds and Fort Saskatchewan districts as being most in need of weed inspection at an early date.

Considerable trouble, as usual, arose in connection with weeds on railway firebreaks. There seemed to be some difference of opinion as to whether the responsibility for their destruction rested on the railway authorities, in view of the arrangement between them and the Territorial Public Works Department whereby that department undertook the ploughing of firebreaks along certain portions of the railway.

Only about 2,000 copies of Bulletin No. 3, "Noxious Weeds and their Destruction," now remain on hand and I would strongly urge that these be supplemented by the issue of a short synopsis of this publication in the German language. This would be of the greatest service in connection with work amongst that section of our foreign population.

Through the courtesy of the Honourable Minister of Agriculture for the Dominion we were again able to avail ourselves of the valuable services of Prof. Fletcher, who delivered addresses at a series of meetings in Western Assiniboia and Southern Alberta during the past year. Most of the elevators were visited by the Chief Weed Inspector while grain was being received, and he found little to complain of in their handling of screenings, as the proportion of weed seeds to wheat was very light at the principal wheat shipping points last season. It may not be out of place, however, to call attention to the vast amount of good feed in the shape of broken wheat, etc., that annually goes to waste through being conveyed to the elevators and afterwards necessarily destroyed when mixed with seeds of noxious weeds.

Considerable attention has been given to the subject of weeds injurious to stock and is treated of under a separate heading in the report of the Chief Weed Inspector which follows.

Report of T. N. Willing, Chief Inspector of Noxious Weeds.

1.—NOXIOUS WEED INSPECTION.

I have the honour to report that during the season just past the war against weeds has been waged throughout the country with varying success, as in some districts the elements seriously interfered with field work and made the roads almost impassable for inspectors. It is apparent that the worst of the noxious weeds have already been introduced into all parts of the country where settlement is, but they only appear in the outlying districts in very small quantities and can be readily destroyed if the danger is recognised by those most concerned. Now, therefore, is the time when the work of energetic and intelligent inspectors is most needed and will be of most value to such districts. It is evident that the remuneration of local inspectors is altogether inadequate for the work expected, and out of proportion to that paid for similar services where a team and rig is required, and no inducement exists for the right class of men to continue in the service when conditions are adverse. Closer inspection, which would mean a longer period of employment, is especially desirable in the newer sections, and it is well to note also that the time allotted to inspectors is insufficient even to allow them to see whether their instructions have been fully carried out or not. To this limitation of time must be laid the blame for many cases of apparent neglect of duty on the part of inspectors. It is probable, too, that many of the people think that too much lenience is shown to those who are working weed infested farms, but it must be remembered that it requires time as well as industry, under the most favourable conditions, to clear a farm of weeds when the soil is full of their seeds. The value of inspection should not be measured merely by the quantity of weeds destroyed through the direct influence of the inspectors, but also by the prominence given to the idea that weeds are a source of loss to the grower and a menace to his neighbour. I believe it is a sign of great progress that complaints are received so frequently regarding the location of careless farmers, and of weeds which have been overlooked. The influx of so many immigrants from the prairie States to the south of us causes some anxiety because of the practice of sowing so much newly broken land with flax seed, which has proved to be the most dangerous medium for the introduction of noxious weeds. The boom in lands will have a tendency to cause a repetition of the early experience of this country. To "bonanza farming" we owe many of our worst weeds. The scarcity of reliable farm help has a direct bearing on the weed question, and we may well reflect on the situation. More diversity of crops and the increase of stock on the farms would enable us to retain help the year round and would also tend to equalisation of the movement of freight.

I was in attendance at the Yorkton and Fort Saskatchewan agricultural exhibitions with the weed tent, and the usual amount of interest was taken in the specimens of weeds displayed.

Assiniboia.—Most of the summer fallowed land in the easterly portion of this district was sown before the wet weather began, and after the rains ceased a large quantity of stubble was sown, which would otherwise have been spring ploughed. This resulted in a considerable growth of false tansy and other native weeds of a biennial nature.

Tumbling mustard made a considerable growth late in the season and was very abundant in the southern districts where there also appeared a great deal of wild mustard in flax, one crop of which had to be ploughed down. Evidences were not wanting of the vile character of the Ontario seed distributed during the previous season. Wild oats have been much more plentiful than in previous years. Stinkweed is spreading somewhat rapidly in districts which have a few notoriously dirty farms located in them. The mere fact of a stinkweed infested farm being left unfenced for stock to wander over during the fall is sufficient to account for this. Several inspectors, however, have reported excellent work in the suppression of this weed in their districts, notwithstanding the fact that the past summer was a very bad one for working summer fallow. In some districts where seed oats from the west were sown there was considerable ball mustard to be seen. Shepherd's purse is said to be persistently creeping into the grain fields, and sweet grass has been making a great growth in the more northerly districts. In the Regina and Moose Jaw districts some roads are in a very weedy condition, stinkweed especially being very noticeable on them. For the good of a district too much care cannot be given by the overseers to the keeping of the roads clear of weeds.

Saskatchewan.—There are in this district a number of old settlements where land has been under cultivation for a long period. Many of these farms are pretty badly infested with weeds and will require careful handling for a number of years before much progress will be evident, even where the intention is good on the part of the holder. Some of the inspectors have had extreme difficulty in getting about their districts owing to the bad roads. Most of the mustards were not so thrifty as usual, but wild oats flourished, as also did shepherd's purse and ball mustard.

Southern Alberta.—The growth of the crops was retarded by the lack of rain in spring and afterwards by the cold damp weather, but some of the worst weeds made luxuriant growth and the land was too wet to be worked till after seeds had ripened. It is probable, therefore, that some of the fields will have far more weeds next year. Inspection has shown that there are many farms with small patches of weeds which had hitherto been overlooked. A thorough examination of the irrigation ditches should be made, as by these the weed seeds may be freely spread about. The growing of fall wheat tends to favour the growth of certain weeds and it was noticed that hare's-ear mustard, as well as false flax, wintered well amongst it. Wild oats as a hay crop has not much to be said in its favour and much against it, but several instances have occurred where it was used. This, however, should only be permitted as a stage in the cleaning of the land. It is evident that the district south of Lethbridge has need of an additional inspector to keep up with its development. The Pineher Creek country is full of noxious weeds which badly need attention. An energetic man could do good work there.

Central and Northern Alberta.—More inspectors are needed to direct the attention of the people to the weeds that are thriving in their midst in this part of the Territories. At most sidings or towns along the railways Canada thistles may be seen and stinkweed is in more or less abundance in fields and roads, especially in the Calgary district. The Olds settlement is becoming badly infested with weeds,

which have made much progress during the wet seasons that have prevailed. In spite of the bad weather and roads good work was done in the Lacombe and Strathcona districts. These should be altered so that a new district might be made south of the Red Deer river, and one eastward from Fort Saskatchewan. About Wetaskiwin some flax crops were seen which were full of wild mustard, false flax and other weeds. Inspection was hardly completed there, however, when crops and weeds alike were destroyed by a very heavy hail storm. The Edmonton country was not inspected last year owing to the resignation of the local inspector and the extremely unfavourable roads and weather.

2.—ELEVATOR INSPECTION.

Nearly all points in the Territories at which there are elevators were visited by me between the 15th October and 1st December. On the whole there was little to complain about from a weed inspector's point of view. Many new elevators have been constructed at various points on the main line of railway and along the Prince Albert, Soo and Arcola branches. Some of these belong to the old companies, others to new firms and several have been erected by syndicates of farmers. About Rosthern and other points in the north the wheat being brought in was much shrunk, the screenings being mostly composed of this and wild buckwheat. The grain mostly handled by elevators on the Calgary and Edmonton line is oats and the bulk of what was being marketed was somewhat green in appearance, but would average about 38 pounds per bushel, the screenings therefrom being mostly ball mustard, wild buckwheat and a few wild oats. Along the Canadian Pacific Railway between Fleming and Caron much of the wheat was slightly frosted and the proportion of No. 1 hard marketed was fairly small. The dockage was light as a rule, but occasionally a very dirty load was brought in. One sample of screenings from Moose Jaw showed hare's-ear, wormseed and tumble mustard, false flax, stinkweed, blue bur, knotweed, lamb's quarter, wild buckwheat, tumble weed, sunflowers and other seeds of native plants. The quality of the wheat about Weyburn and along the Souris line graded much higher than that grown further north, a very large percentage of it being No. 1 hard. The screenings were small in quantity, the seeds most in evidence being cow cockle and corn cockle with a few wild oats and hare's-ear mustard. In one elevator I saw a large quantity of almost pure tumble mustard seed which is generally left on the field, or in the straw, by the threshers.

3.—PLANTS INJURIOUS TO STOCK.

At various times and seasons there have been enquiries made by correspondents of this Department and the agricultural papers regarding the causes of fatalities occurring on farm and range which were thought to be due to poisonous weeds. When possible these cases were investigated, but generally information came too late to permit of much light being thrown on the matter. I have, during the year, gathered from various sources some information regarding the plants growing in the Territories which are known to be of an injurious character to stock, and hope that this may lead to the acquisition of further knowledge. The Department of Agriculture of the United States, and various experiment

stations, have issued valuable bulletins dealing with this subject and I shall quote or summarise what seems most suited to our purpose. Most of the illustrations are derived from the bulletins mentioned.

The plants which cause fatalities are not all poisonous, but the injury is sometimes mechanical in its nature, as in the case of the

Crocus Anemone.—This is a beautiful purplish cup shaped flower that is very abundant in some localities in the early spring. Close observation on the part of some Alberta shepherds showed that deaths were frequent in a bunch of sheep after feeding greedily on these flowers, and a microscopical and chemical investigation by Professors Fletcher and Shutt, of Ottawa, proved that numerous balls of felt, composed of the



Crocus Anemone. (*Anemone patens* v. *nuttalliana*.)

fine hairs with which the plant is covered, formed in the stomachs and impaired the digestion to such an extent as to frequently prove fatal. I have, however, taken from an old sheep as many as seventeen balls which varied in size from a marble to a large egg. This ewe was known as a "piner." A shepherd should avoid letting his sheep graze where the anemone is abundant.

Spear Grass.—It has been known for years that this grass makes victims of some of the lambs in seasons which have been favourable for the production of seed, but it is a valuable grass for winter grazing, as the barbed seeds have then fallen.

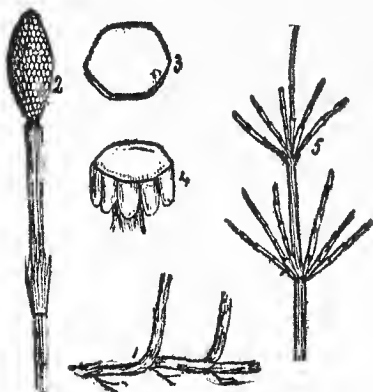
Skunk-Tail or Barley-Grass.—This grass causes trouble of a mechanical nature when prevalent in hay fed to horses or sheep. The awned seeds work into the mucus membranes of the mouth and throat to such an extent that ulceration of the jaw bones may be the result, or an enlargement may be produced which may be mistaken for actinomycosis. Hay meadows where there is much of this grass should be cut early enough to prevent the seed developing.

Horse-Tail or Scouring-Rush has been very abundant in some localities that have experienced an excessive rainfall, and suspicion has turned to it. There is apparently no evidence against the weed here, although several species of it have been accused of poisoning horses, cattle and sheep in Europe and America, but investigations by the U. S. Department of Agriculture do not seem to bear out the supposition that the

plant contains a specific poison. I have also noticed the following reference :

It appears probable that *Equisetum arvense* often causes serious poisoning of horses in Vermont and is fatal when eaten in considerable quantity. It is believed to be the cause of blind or stomach staggers, and is doubtless the cause of more loss to stock owners in Vermont than any other plant. Conflicting evidence is presented relating to its poisonous action in reference to sheep. Cattle are said to feed upon it with impunity.

The consumption of a large quantity of any species of the horse tail



Field Horse Tail. (*Equisetum arvense*.)

would probably cause derangement of the system because of its harsh scouring action in the mouth and intestinal tract, due to the large proportion of silica in its composition.

Oat Smut.—When abundant in a crop which may be cut for green feed, oat smut may cause irritation and congestion. A number of fatalities amongst cattle in Northern Alberta have been laid to this. In Montana a lot of cows were fed on smutty hay and within twelve hours after the first feed one-half of them died with symptoms of gastritis and cerebral excitement. No more of the hay was fed and no more deaths resulted. A *post mortem* examination showed the stomachs much congested. This is another argument in favour of treating the seed with formalin.

Ergot.—Ergot has been extremely abundant this season in a number of native grasses and also in timothy. It is probable, therefore, that ergotism may develop during the winter from the feeding of hay containing this fungus growth. A warning bulletin on this subject was issued by the Kansas Experiment Station last fall, and I will quote from it :

Ergot is a fungus which replaces the ordinary seed or grain with a black or brown black grain, cylindrical, pointed and slightly curved. Cold weather and scarcity of drinking water seem to favour development of ergotism. Ergot lessens the blood supply and the tail or ears may swell, get cold, die and slough off. When the feet are affected the animal gets very lame. Ergot causes abortion, and also affects the nervous system, causing trembling of the muscles, weakness, staggering gait, and sometimes convulsions. The digestive system is often affected and there may be purging, indigestion and abdominal pain. Cattle are more seriously affected than horses. Avoid feeding ergot. A purge of one pound of Epsom salts for adult cattle or a quart of raw linseed oil for horses should be given. Give sloppy, nutritious foods, with plenty of drinking water. Bathe affected parts with hot water, rub to stimulate circulation and apply antiseptics such as 5 per cent. carbolic solution.

A limited number of species of the many hundreds of flowering plants which are native to the Territories are known to be poisonous, and most of these are not attractive in taste, but are eaten with or in lieu of grass. Some of these are only harmful at certain stages of their growth, and one part of a plant may be injurious while at the same time another part may be innocuous or even nutritious. These varying conditions make investigation more difficult and evidence conflicting. We have plants in abundance which are of the same species as some that prove fatal to stock in other places, yet they seem to be harmless here. I will note a number which have bad reputations and will treat more fully those against which we have good evidence.

Crowfoot or *Buttercup*.—This family is found represented by many different species, and the juice of them is of a more or less acrid, blistering nature. The active principle is volatile, so these weeds will be harmless when in hay. The symptoms of poisoning by species of buttercup in Europe are said to be nauseous vomitings, salivation, colic, diarrhoea, albuminuria, staggering, stupefaction, trembling, falls, apoplec-tiform death. Treatment should be symptomatic. Tannin is advisable.

Larkspur.—Two species of this occur and are both fatal to stock. One grows to a height of from three to five feet and is found about the edges of the poplar bluffs in Alberta and Saskatchewan; the other seldom exceeds a foot in height and grows on the slopes of the Cypress Hills and westward to the foothills. Both have purple flowers and leaves cleft in a palmate manner. It appears that the time to expect larkspur poisoning is in the spring and early summer while the plants are fresh and juicy. The symptoms shown by an affected animal are stiffness and a slight irregularity of gait and straddling of the hind legs in walking. It falls and rises with the muscular movements incoordinate and the muscles and legs quivering spasmodically. The final stages are accompanied by violent spasms with intervals of rest, while in poisoning from death camas the last stages are passed in a state of paralysis, although the symptoms at first are somewhat alike. Atropine is considered the best antidote for the physiological effects,



Purple Larkspur showing Fruit and Flowers. (*Delphinium bicolor*.)

while permanganate of potash and sulphate of aluminum should be used as a chemical antidote. It would not be a difficult matter for farmers to root out the tall larkspur from the bluffs about their farms.

Baneberry.—This plant grows in the shade of the willows and species of it produce red and white oval shining berries at a height of a foot or so. No cases of poisoning from this plant have yet been recorded here, but children should be warned against it.

Corn Cockle and *Cow Cockle*.—These two plants are not natives, but are becoming rapidly abundant in the grain fields as troublesome weeds, and their seeds have formed the principal part of the screenings at some points in Assiniboia this season. The seeds of the first mentioned are extremely difficult to separate from wheat. The poisonous constituent



Corn Cockle. (*Agrostemma githago*.)

a, sprays showing flowers and seed capsule, one-third natural size; *b*, seed natural size; *b'*, seed, four times natural size.

in each is saponin, the action of which is antagonised by the extract of digitalis, a powerful poison. The most dangerous part of cockle is the seed, and care should be exercised that it may be removed from wheat before milling, and from food for stock. Chronic poisoning may be induced, resulting in diarrhoea and gradual depression, with death. Acute poisoning is indicated by vomiting, headache, nausea, vertigo, diarrhoea, hot skin, pains in back, difficult locomotion and depressed breathing. Coma is sometimes present and is followed by death.

Large Flowered Yellow Flax grows on our prairies, although not conspicuous. It has been experimented with in the States and proved poisonous to sheep.

Blue Flax. (*L. usitatissimum*).—The cultivated flax causes poisoning sometimes in the pig, cow, sheep, and in poultry; this is due to acrid narcotic poison (linine) contained in the seed capsules and possibly in sickly plants. This being the case care should be exercised that animals are not allowed to feed about where flax has been threshed. The symptoms are: Violent colics, diarrhoea, staggering, trembling, palpitation of heart and death in convulsions. The treatment must be symptomatic.

Thermopsis or *Wild Bean* has been suspected of poisoning cattle, but no direct evidence is to hand, though several cases have occurred at various points in the Territories where children have eaten portions of the plant and suffered from it. In one case several boys, while walking over the prairie, ate the seeds from the bean-like pods and were very quickly affected with giddiness, headache, nausea and extreme weakness. They, however, recovered after emetics were administered. In another case children were affected by eating the flowers. *Thermopsis* grows about eight to twelve inches in height, has yellow flowers in shape like pea blossoms, which produce curved pods about four inches in length, and the leaves are composed of three leaflets.

Lupine.—The Lupine grows very abundantly in some sections of Alberta and about the Cypress Hills, and is excellent food for stock when eaten green or in hay if cut at the right time. It is a member of the pea family with an upright stalk on which are clustered the blue or cream coloured flowers. The leaves are palmately divided, the leaflets being about seven in number and somewhat silvery in appearance. The fruit is a hairy pod about an inch and a half in length and half an inch in width, and in the seed lies the danger. It has been found that the seeds contain hydrocyanic acid in such quantity that large numbers of sheep have been poisoned by having been fed lupine hay. It seems that the hay had been made just when the pods were well filled but not ripe enough to allow the seeds to drop, as they will do if permitted. The presence of fully formed seeds constitutes the danger in hay containing this plant. In lupine poisoning there is acute cerebral congestion with great mental excitement. Frenzy is followed by irregularity of movement, violent spasms and falling fits. Collapse and death often follow in half an hour or more. After an animal is down convulsions follow at short intervals. These convulsions resemble those caused by strychnine. The urine is much increased and sometimes bloody. Affected animals sometimes linger for several days, the pulse being weak and respiration slow after the first day. It has been advised to try potassium permanganate and aluminum as a remedy.

Loco Weed.—This is a term applied to several species of the pea family which have been suspected of causing serious trouble in the flocks and herds of the Western States. The eating of the loco seems to be an acquired habit which has never been observed to any extent on our side of the line, although affected horses have been brought in. Two species, *oxytropis lambertii* and *O. splendens*, are abundant from Manitoba to the Rockies. The flowers of the former are mostly pale yellow; those of the latter are purple, and this plant has a much more silvery appearance than *lambertii*. The U. S. government is still investigating the subject of loco poisoning, as it is not yet thoroughly understood. The symptoms are irregularities in gait and action, such as may be produced in man by alcohol. Sight is frequently affected to a greater or lesser extent, and so also is hearing. In chronic cases of the loco habit in sheep the animal



Stemless Loco Weed. (*Oxytropis lambertii*).

a, flowering plant; *b*, seed pods; *c*, cross-section of seed pod. All one-third natural size.

becomes emaciated and crazy, perhaps sheds all or part of the wool and becomes unable to care for itself and may lose sight of the band. Fits of trembling are of frequent occurrence until death from exhaustion and inadequate nutrition result. Cattle are seldom affected by loco.

Choke Cherry.—This cherry should need no description, as it is well known, but few are aware that the leaves are capable of causing death. Should young shoots of this be mown with grass and fed to animals, while the leaves are half wilted, poisoning might result as chemical action produces prussic acid, which is also yielded by the seeds. The kernels of cherries or plums should never be eaten, but in case of a person being thus poisoned, use emetics, wash out the stomach with dilute solution of peroxide of hydrogen and call in a physician. The symptoms of cherry poisoning in cattle are heavy breathing, weak pulse, numbness, protruding eyes, convulsions and death from paralysis of the lungs. In some cases frothing at the mouth, and in all an odor of prussic acid in the breath.

Cicuta, *Water Hemlock* or *Poison Parsnip*.—This is a plant which in Europe and the various parts of America is known to be harmful. Although the species may vary in different countries the poisonous properties seem to be much the same wherever found. It is parsnip-like in appearance, but the flowers are white, and it is found growing in low, damp places or on banks of creeks and lakes throughout the Territories, being much more abundant after a series of

wet seasons. It may be distinguished by the cluster of fleshy roots, which have a sweet aromatic odor. These roots are the most poisonous part of the plant, containing as they do a volatile oil, which is especially powerful after the stalks have died away in the fall and till new plants have grown in the spring. It would not, however, be safe to say that the stems, leaves and seeds are not poisonous, as it would seem that a number of horses were affected by cropping portions of cicuta growing in



Water Hemlock. (*Cicuta occidentalis*.)

a pasture near Regina in the latter part of August last year. The symptoms in this case were: "Diarrhœa with weakness, temperature about 103 degrees. Two showed partial paralysis with slight muscular spasms. The heart action was irregular and of a tumultuous nature. All recovered." In this case the animals must have had a very small quantity of the poison, which is so strong that a piece of the root the size of a marble may prove fatal to man. The symptoms of cicuta poisoning of sheep as observed in Montana were an attempt to run in any direction, cerebral frenzy, accompanied by involuntary muscular movements, which suggest colic; the respiration was laboured and irregular, the pulse wiry and intermittent. In some cases of cattle being poisoned they died within fifteen minutes of the first signs. Sheep have died suddenly at various points in the Maple Creek district for several seasons, and the writer was asked to look over the range for the cause of this loss. In every place where deaths have been frequent cicuta was found to be growing near where the sheep had been watered. Permanganate of potash should be promptly administered and morphine may be given hypodermically in doses as follows: For sheep, $1\frac{1}{2}$ grains; for cattle and horses, 3 to 10 grains. If drugs are not handy, try melted lard. The Indians are said to successfully treat persons who have been poisoned by cicuta by giving about 4 drachms of gunpowder in less than a pint of water and well stirred, and then giving lukewarm water as an emetic.

Sneezeweed has a yellow flower similar in shape to that of a sunflower, but the rays are shorter. It grows in low damp places and the



Sneezeweed. (*Helenium autumnale*.)

One-third natural size.

flowers are known to be poisonous if eaten in quantity, but stock generally avoid it. Difficult breathing, quickened pulse, staggering and extreme sensitiveness to touch are the symptoms, and fatal cases end in spasms and convulsions. Melted lard has been used with good effect.

Death Camas or Poison Sego.—One of the most dangerous weeds on the western ranges is this weed. It was growing in abundance in Southern Alberta last summer. Large numbers of sheep have been affected in the early summer by the prevalence of this weed amongst the grass on which they were grazing. The plant has a bulb like that of a young onion, and the leaves are almost grass-like. The flowers are yellowish and waxy in appearance and are clustered on the stem at a height of about 10 to 15 inches. The species is botanically known as *Zygadenus venenosus*, but we have also *Z. elegans* growing very thickly in the more northern sections. It is slightly coarser and has larger flowers than the others. This is apparently avoided by stock or losses would be



Death Camas. (*Zygadenus venenosus*.)

frequent. The first signs of poisoning in sheep are uneasiness and irregularity in the movement, rapidly becoming more pronounced and accompanied by incoordination of the muscular movements, spasms and rapid breathing. The cerebral symptoms seldom constitute a condition of frenzy. The later symptoms were complete motor paralysis, combined with rapid shallow breathing and a frequent weak pulse. There was usually an increased salivation and regurgitation through the mouth and nostrils. Digestive disturbances in the lambs were frequently of an acute nature in the form of enteritis and dysentery, from which they died in a few hours. In cases where the ewes had

been only slightly poisoned the lambs showed milder symptoms, but could readily be detected by their stiffness of joint. It has been found by the U. S. Department of Agriculture that a combination of diuretin and caffeine is a satisfactory antidote and can be given by means of a hypodermic syringe very rapidly. This acts on the kidneys and seems to carry off the poison.

Three-flowered Nightshade or *Wild Tomato* is a common garden weed, with a strong musky smell. It produces green berries resembling small tomatoes, and these have been known to cause death when eaten



Spreading Nightshade. (*Solanum trifolium*).

One-third natural size.

in quantity. I have observed sheep eating these plants about the badger holes in August with apparent impunity. The poisonous property is probably solanin.

Poison Ivy.—Poison ivy is found in some of the wooded sections of the Territories and persons are sometimes reported to have been poisoned by it. The poisonous principle is a nonvolatile oil known as toxicodendrol and cannot be washed off the skin with water alone, but may be removed by alcohol. An alcoholic solution of the sugar of lead is said to be effective if well rubbed in. The effects of the poison on persons is well known, but there appears to be much difference of opinion as to how cattle may be affected by it. In this connection I will quote from Bulletin No. 20 of the U. S. Department of Agriculture: "All poisonous plants are not equally injurious to all persons, nor to all forms of life. The most familiar illustration of this is to be found in the action of poison

ivy. It has no apparent external effect upon animals, and a few of them, such as the horse, mule and goat, eat its leaves with impunity." And again, in a report of the Bureau of Animal Industry: "The leaves of the various species of poisonous rhus, for example, are eaten by several, if not all, kinds of stock with impunity, and even with considerable relish." These statements do not coincide with replies sometimes seen in the columns of our agricultural papers to the effect that poison ivy causes sloughing of the skin, etc., in cattle.

A large number of other plants are known to possess poisonous properties but are either avoided by cattle or occur in no considerable quantity. If persons having animals poisoned would report such cases promptly to the Department they could be investigated and we would soon know more about these matters. Certainly there is much to learn.

HARVEST HELP.

In previous years the responsibility for providing and distributing harvest hands for the great grain producing districts of the west has rested mainly on the Canadian Pacific Railway Company, which has been in the habit of running, each year, harvest excursion trains from points in Ontario to as far west as Moose Jaw. Harvesters were booked indiscriminately, at cheap return rates, to whatever point in the west they might individually decide upon. The results could not be other than unsatisfactory, as some parts of the country got too many harvesters and others were left practically without any. From reports received from the Department's crop correspondence staff, it early became evident last season that an enormous harvest was in prospect and that the allied labour problem would be of more than usual magnitude. It was realised that the time had arrived when the distribution of harvest help must be put on a better and more businesslike footing than had hitherto obtained and negotiations, having this object in view, were entered into with the Canadian Pacific Railway authorities. It was finally arranged that the harvesters should be booked, in the first place, to Winnipeg only, and should be distributed from that point, free of charge, to places at which their services were required, under the direction of officials of the Department. The Department at once placed in the hands of each railway station agent in the large crop districts of Assiniboia an employment register in which each farmer requiring help entered his name, residence, number of men wanted and probable duration of employment. These registers were later on returned to the Department and the information gleaned from them will, it is thought, prove useful, to some extent at least, in gauging next year's requirements. From these registers daily reports were made up and transmitted by the station agents to the office of the General Passenger Agent at Winnipeg. Mr. T. N. Willing, of the Department's staff and Mr. R. M. Mitchell, an experienced employment agent, were stationed at Winnipeg during the time in which the harvest excursions were arriving. These gentlemen met all the harvest trains and supervised the distribution of help to Territorial points in accordance with the information as to local requirements furnished to them from the General Passenger Agent's office. It was found that an unfortunate tendency existed on the part of many of the excursionists to crowd to certain points, the governing idea being apparently to get as much travelling for their money as possible. The

consequence was that in spite of the untiring efforts of the Department's representatives to counteract this tendency, points such as Moose Jaw became congested with harvesters, about half of those who went there being compelled to return to more eastern points at their own expense.

On the whole the arrangements made worked out satisfactorily and without friction, and the experience gained will be of great value in dealing with this important matter another season. As indicated by the subjoined table the requirements of the various points, as indicated by the registers, were more than met and no complaints of lack of help reached the Department. Although every effort was made by the Department to give full publicity to the arrangements, it is evident, from the figures given, that only a little over ten per cent. of the farmers took advantage of the opportunity afforded them of making their wants in the way of harvest help known. Fortunately the weather during the whole of harvest time was most favourable, hence any delay in the work owing to shortage of help was not so important as if conditions had been less favourable.

STATEMENT Showing Distribution of Harvest Help.

Crop District	No. of farms in District	Average harvested per farm. Acres.	No. of farmers who registered	No. of hands asked for	Approx. No. supplied
1	1754	97.58	151	289	416
3	1931	64.53	115	147	227
4	2049	87.03	216	536	538
5	1432	120.00	260	568	749
	7166	90.14	742	1540	1930

There is not much room for doubt that the provision and distribution of harvest help at the right time and in sufficient quantity is rapidly becoming one of the most serious problems that confronts the large grain farmers of the west. The supply is so limited, and is so dependent upon varying social and economic conditions, that it is almost impracticable to generalise on the subject. Each year harvest help supply must be dealt with, to a very large extent, in accordance with the conditions prevailing, not only in the west but in the east, as each harvest time approaches, while the arrangements of both the railway company and the Department must be complete and in working order not later than the middle of August. It is, under present conditions, absolutely necessary for the farmers of the Territories, if they desire to avoid loss and inconvenience, and even the possible annihilation of a whole season's work, at this for them most critical time of year, that they should assist the Department in dealing with this matter in every way in their power, and this they can most conveniently and effectively do by registering their requirements in the way of harvest help in good time, at their nearest railway station. The Department, on the other hand, will leave no stone unturned to get the fullest information possible to enable it to act intelligently in this matter, in connection with which the newly organised crop reporting service is likely to prove of the greatest practical value, but all its efforts must prove abortive if those whom it is intended to benefit neglect the opportunity offered of helping themselves.

It is of interest to note that the question of farm labour is now engaging the attention of the Ontario government. That Province has in the past been considered the source of supply for the west, but evidently the tide is turning and the difficulties in the way of obtaining sufficient harvest help for our wheat fields may thus, in the near future, prove a factor in compelling western grain growers to diversify their operations with a view to employing a larger number of hands the year round, which, of course, would have the effect of relieving the situation at harvest time.

II.—LIVE STOCK.

HORSES.

This subject is very fully dealt with by the Secretary of the Territorial Horse Breeders' Association whose report is reproduced in the Appendix.

REGISTRATION OF STALLIONS.

When the Department was first organised the question of providing stallion owners with a reasonable amount of protection, while at the same time protecting the public against stallions with spurious pedigrees, was fully considered, and as a result a bill was brought before the Legislative Assembly which afterwards became law under the name of "The Horse Breeders' Lien Ordinance." This Ordinance was modelled on the principle of the Manitoba law which is based on the Act prevailing in the State of Illinois. The Ordinance in question provides that stallions may be licensed by the Department. None but animals of pure breeding can be registered and a fee of five dollars is charged. The Ordinance gives the owner of the stallion a lien on any colts produced, upon certain formalities being complied with. So far very few stallion owners have availed themselves of the protection offered by this Ordinance.

The policy of exercising government supervision over stallions standing for public service has been adopted in most civilised countries, where it has been considered advisable to pay special attention to the development of agriculture and live stock. It is a question, however, to what length a government is justified in going in this respect. In France, as well as in many other military countries, where the production of an adequate number of serviceable remounts may be looked upon as of national importance, a very stringent veterinary inspection of stallions is insisted upon as well as a thorough examination into the breeding of such animals. A stallion not licensed by the Government may not be used for public service. Undoubtedly such measures would be entirely too stringent under the conditions prevailing in the North-West Territories. At the same time horse breeding has ever been a leading industry in the west, and it is destined to be of even greater importance in the future than it has been in the past, and it is worth while to consider whether steps could not be taken to impose reasonable regulations on breeding operations. A very serious hardship is now inflicted upon owners and importers of high class stallions who come into unfair competition with animals of uncertain pedigree whose chief recommendation is that they are cheap. It may be argued that the average farmer is well able to select a horse and generally to look after himself, but it must also be taken into consideration that the average farmer very often does not know enough about pedigree to analyse the elaborate and confusing list of ancestors that generally figure in stud advertising matter, particularly when it pertains to an inferior

horse. While undoubtedly the time is not yet ripe for a veterinary inspection of stallions standing for public service, even if a sufficient number of qualified veterinarians were available to make such a proposition feasible, it would seem as if the Government had a perfect right to insist upon no stallion travelling under false colours. This could very easily be remedied by making the registration of stallions in the Department compulsory, and issuing a certificate showing plainly the actual status of the animal, whether cross bred, grade or purebred, and by providing that this certificate be reproduced upon all advertising matter issued in connection with such stallion.

CATTLE.

The growth of the export beef industry of the Territories has been rapid since its inauguration in 1890, when the first large shipment took place consisting of 8,000 head. A prominent factor in this increase has been the importation of stocker cattle from eastern points. The following statement of imports and exports of cattle is of considerable interest. It is evident that within the next two or three years our exports must of necessity very materially increase

IMPORTATION of Stocker Cattle.

	1899	1900	1901	1902
From Ontario	8,000	11,434	15,851	21,759
“ Manitoba	25,000	24,896	30,000	33,000
Total	33,000	36,330	45,855	54,759
Beef exports, east and west			39,683	60,053

The total shipment of export cattle from Canada *via* the port of Montreal during 1902 only amounted to 77,000 head. It is evident that Territorial cattle exports are assuming a more and more preponderating position. During the year an important enquiry was instituted in Great Britain with a view to ascertaining the exact quantity of British fed meat consumed annually by the population of the United Kingdom. This necessarily involved a computation of the proportion per capita of foreign, colonial and English meat required. British meat imports are rapidly reaching the gigantic volume of a million tons per annum, but breeders there appear to find consolation in the fact that the home consumption of the United States, which now supplies 45 per cent. of the foreign meat imports, shows signs of growth. It is found that the United States population is increasing at the rate of 20 per cent. per decade, which means an additional number of cattle will be required annually for home consumption of at least 200,000 head. At that rate the United States may cease to export beef within very many years. The following statement shows the area and the total number of cattle and sheep of each of the principal countries supplying meat to Great Britain:

Country	Area Square Miles	Number	
		Cattle	Sheep
Argentina ..	2,903,000	28,000,000	110,000,000
Australia	7,650,000	10,000,000	70,000,000
New Zealand ..	272,000	800,000	18,500,000
United States....	2,970,038	67,822,338	61,605,811
Uruguay	185,000	6,000,000	18,000,000
United Kingdom	121,000	11,376,000	30,000,000

Estimating on the basis of recent census returns, apparently the United States has 0.88 of a cattle beast and 0.8 of a sheep per capita of inhabitants, the Argentine 6 and 26, Australia 2 and 14, New Zealand 1 and 22 and Uruguay 6 and 18 respectively.

Phenomenal prices were offered for cattle in United States markets during the past year. Carloads were sold at from \$6.50 to \$7.00 per hundred and upwards. Range steers were fat and the supply apparently was available, and the first cattle that were marketed early in August were purchased at unprecedented prices. During the year a number of Territorial cattle were driven across the boundary line to be shipped *via* the Great Northern system in bond to Great Britain. It was stated that a saving of a dollar per head was effected by shipping this way which, however, was denied by the shippers. One shipment made by the Canadian Land and Rancho Company was inspected while in transit by a buyer of one of the leading commission houses in the United States, and he stated as his opinion that they would have brought \$6.00 per hundred on the market on the day they were landed at St. Paul. After deducting duty and other charges these cattle would, on that basis, have realised \$7.50 per head over and above the price ruling on the Canadian side at the time.

IMPROVEMENT OF CATTLE.

Importation of Pure Bred Cattle.—The rapid development of the pure bred cattle industry in the Territories is, to a far greater extent than would appear at first, due to the yearly importation of pure bred bulls under the arrangement between this Department and the Canadian Pacific Railway Company. This scheme has now been in operation three years. The railway company has granted free transportation each year on eight carloads of bulls from points in Ontario and Manitoba to the North-West Territories, and a uniform rate of \$5.00 per head has been charged for delivering the bulls. Females were, up to last year, allowed to be shipped with the bull importation on payment of the proportionate cost of transportation and attendance. This year females were included in the Government importations at the uniform rate of \$7.50 per head. A charge of \$2.50 was made on sucking calves.

The following statement shows the importations, under this arrangement, from Ontario and Manitoba during the past three years as well as the cost of each year's operations.

Province	1900		1901		1902		Total
	No. of Animals	Total cost to Dept.	No. of Animals	Total cost to Dept.	No. of Animals	Total cost to Dept.	
Manitoba	18	.....	25	.....	29	.....	72
Ontario	47	.....	13	.....	42	.....	102
	65	\$186.46	38	\$39.77	71	\$58.41	174

A glance at the above statement will show that the cost per head has been materially reduced each year. The importations of 1900 were made at a cost of \$2.86 per head. In 1901 this service only caused an expenditure of public funds of \$1.04 per head, while this year's importations only called for an expenditure of 82 cents per head which, it will be granted, is a very satisfactory showing. Persons taking advantage of this system of importing cattle have in some cases expected their animals to leave the east as soon as the necessary documents and fees had been forwarded to the Department. In this connection it may be of interest to mention that, in spite of the efforts of the Department to have all documents filed by May 1st, not more than 25 per cent. of the shipping instructions covering stock to be included in the importation are ever complete at that date, and that it seems impossible to get these instructions compiled in time to have the stock leave the east before the middle of June.

The attached statement gives a list of the stock brought up under the auspices of the Department this year. The animals were collected from 27 points in Ontario and Manitoba and distributed to 32 stations in the Territories.

PURE BRED Cattle Imported from Manitoba, 1902.

No.	Breed.	Shipping Point.	Destination.
1	Shorthorn	Delean	Bittern Lake.
1	"	Austin	Millet.
2	"	Manitou	Gleichen.
1	"	Brandon	Jumping Pond.
1	"	Griswold	Battleford.
1	"	Carberry	Cochrane.
1	Aberdeen angus	Carroll	Parkbeg.
1	Shorthorn	Griswold	Fort Qu'Appelle.
1	"	Carberry	Dongola.
1	Hereford	Delean	Lamberton.
1	"	Souris	Rush Lake.
2	Shorthorn	Brandon	Lacombe.
5	Hereford	Hartney	Edmonton.
3	Aberdeen angus	Solsgirth	Cochrane.
1	Hereford	Hartney	Regina.
6	Ayrshire	Souris	Battleford.

PURE BRED Cattle Imported from Ontario, 1902.

No.	Breed	Shipping Point	Destination
1	Shorthorn	Menie	Innisfail.
1	"	North Toronto	Yorkton.
1	"	Lawrence	Moosomin.
1	"	Forrest	Lacombe.
9	"	Guelph	Lacombe.
1	"	Seaforth	Moosomin.
2	"	Myrtle	Macleod.
1	"	Harriston	Saskatoon.
1	"	Guelph	Morning Side.
4	"	New Market	Saskatoon.
1	"	Napanee	Strathcona.
2	"	Guelph	Moose Jaw.
1	Holstein	Harrisburg	Red Deer.
1	Shorthorn	Caledonia	Sintaluta.
1	"	Claremont	Moosomin.
2	Jersey	Grafton	Regina.
1	Galloway	Guelph	Lamerton.
1	Shorthorn	Thamesville	Pincher.
2	"	Myrtle	Calgary.
1	"	Clinton	Qu'Appelle.
2	"	London	Edmonton.

SUMMARY OF DISTRICT REPORTS.

Eastern Assiniboia.—In this district, most of the cattle being stabled or shedded, the winter loss does not vary from year to year to any great extent if feed is plentiful, and was very light last winter. The calf crop was normal and comparatively few animals were killed by coyotes. A fair supply of hay of good quality was secured, although most of the sloughs were under water. Cattle were in excellent condition at the beginning of winter and in the grazing districts grass was well cured. Beef cattle were sold at from 3 to 3½ cents per lb. live weight without shrinkage; the top price for steers being about \$53.00. The general health of cattle was good, although some bunches were affected with inflammation of the eyes, which was thought to be contagious. Actinomyosis, or lumpy jaw, is said to be somewhat prevalent about Saltcoats and it has been suggested that more stringent measures should be adopted to prevent diseased animals running at large.

Dundurn.—Losses on the range here were merely nominal during the winter of 1901-2. The calf crop was lighter than usual and in some bunches prairie fires destroyed many of the late ones. There was a large quantity of good hay secured and the grass, where not burned, was well cured; but the heavy snowfall will probably necessitate generous feeding of hay. Prices ranged from \$43.00 to \$50.00 for steers, and \$32.00 to \$35.00 for fat cows. Cattle were in good condition at the beginning of winter and the general health had been good throughout the season. A few losses occurred through miring or drowning on account of snow concealing the ice before it was strong enough to bear.

Prince Albert.—Winter losses have been lighter than they have been for a number of years. The percentage of natural increase was about sixty-five. Fully the average quantity of hay was put up and, on the whole, it was of good quality. A considerable part of the early cut was, however, damaged by the rains. Cattle were never in better condition

for winter, having been in good health throughout the season. Yearlings sold at from \$10.00 to \$15.00; two year olds, \$15.00 to \$25.00; three year olds from \$25.00 up. Beef cattle shipped have been the best seen for years.

Wood Mountain.—On account of so many poor yearlings from Ontario being on the range the winter loss was about $2\frac{1}{2}$ per cent. heavier than during the previous season, or about 5 per cent. The calf crop was about 60 per cent. in the larger bunches and somewhat higher in the smaller. An abundance of good hay was cut on the higher lands but on account of the heavy rains the low meadows could not be mown. Stock were in good shape at the beginning of winter as the grass had been plentiful and had cured well. Reports from Willow Bunch say that late fires have burned over a great portion of the range, and that symptomatic anthrax has been prevalent in the eastern portion of the district causing considerable loss amongst the young cattle. The loss from wolves was put at about 2 per cent. of the calves. Prices realised for beef cattle were slightly better than those of the previous season, averaging about \$43.00 for steers and \$20.00 for cows. About 10 per cent. of the horses about Willow Bunch are said to have died of swamp fever.

Maple Creek.—The general opinion seems to be that the winter loss was about the same (5 per cent.) as that of the previous season, although the spring losses would in some districts raise it to 10 per cent. The rate of increase has been placed by some of the largest ranchers at about 45 per cent. of the cows bred, but proprietors of many smaller bunches report 60 per cent. Wolves have been very troublesome and seriously affected the calf crop. More than the usual amount of hay has been secured and it is of good quality. The grass on the ranges cured well and cattle were in excellent condition at the beginning of winter. The prices received for beefs were said to be the highest ever paid and ranged from \$42.50 to \$60.00, and \$30.00 to \$40.00 for fat cows. Generally speaking the health of cattle was good but in some herds acute inflammation of the eyes was prevalent, principally amongst eastern yearlings, range calves and bulls. Some mange still appears on the ranges and a slight outbreak of anthrax, which did not spread, was reported. Extra effort should be put forth to exterminate the wolves which are becoming a serious pest in this district. A large number of stockers have been brought in during the season.

Medicine Hat.—The winter losses on this range have been merely nominal, and 1 or 2 per cent. would probably cover them. During the stormy weather in spring, however, the loss was somewhat heavier. The calf crop was about the same as that of the previous year, varying from 65 to 80 per cent. of the breeding stock. More than the usual quantity of hay of excellent quality was secured and, as the grass on the range was well cured, stock were in fine condition to stand the winter. The prevailing prices for beef animals were somewhat in advance of former years, $3\frac{1}{4}$ to 4 cents, or \$45.00 to \$57.00 being given for steers, and 3 to $3\frac{1}{2}$ cents per lb. for cows. The losses in summer from wolves are still heavy in some portions of the district, and an increase of the bounty is asked. One rancher near Eagle Butte lost 18 head from this cause. The cattle, generally speaking, have been in good health. A few cases of lumpy jaw, black leg and mange, however, occurred.

Macleod and Lethbridge.—The somewhat heavy losses in spring

would bring the average loss to about 10 per cent., but the winter was very favourable for stock. The wet weather in spring killed many calves and was hard on the heifers also. but, nevertheless, the increase was from 50 to 75 per cent. of the cows. The hay season was good; the best in fact for many years, and a good deal of fine hay was put up. Grass cured well on the prairies and cattle were in prime condition for shipping, or wintering. Prices for beef cattle ranged from \$40.00 to \$55.00 for steers. The general health of cattle was good although a few cases of mange are still to be seen. In some bunches a large number of cattle, principally dogies, were affected with blindness, probably opthalmia, getting very thin and in some cases dying. There have also been some losses from prairie fires.

Pincher Creek.—The grass having been well cured on this range the winter loss was considerably lighter than during the previous season and has been estimated at from 1 to 5 per cent. The natural increase has been higher by about 10 per cent. and is variously estimated at from 60 to 85 per cent. of the stock. The amount of hay of good quality secured was somewhat in excess of the usual quantity notwithstanding the large amount damaged by rain. In the foothills early frosts damaged the grass considerably but on the prairies it was fairly well cured. Cattle were in splendid condition for beef and for wintering. The prices realised were about \$4.00 per head better than in 1901 for beefers, or about 5 per cent. advance all round. There was some loss amongst Manitoba stockers from intestinal parasites, and opthalmia, amongst the bulls especially, gave some trouble, but the health of cattle in general was good. The range is rapidly becoming restricted in area by the fencing of farms, and the character of the cattle industry in this district will soon have changed.

Porcupine Hills.—The winter of 1901-2 was very favourable for stock and the losses were much lighter than during the previous one, but as the spring and early summer were very wet and cold many calves were lost and 10 per cent. would hardly cover the whole loss. The increase on the range was about 50 per cent. of the breeding stock and probably 75 per cent. amongst fenced cattle. The hay was of good quality and a very large amount was put up. As a rule the grass cured well but in some places it was slightly frozen. Cattle were in good condition to winter and may be expected to come through well. The prices obtained for heeves ranged from 3 to 4 cents per lb., or from \$45.00 to \$55.00 per head for steers, the price for cows being \$30.00 to \$35.00. Wolves are now comparatively few in number but some damage was reported from back in the hills this fall. Coyotes are said to be increasing and continue their depredations on calves. Mange is still prevalent and the usual number of cases of symptomatic anthrax (black leg) and actinomyces (lumpy jaw) have been reported. The fencing of the water frontages is a matter which is creating a considerable amount of anxiety among the ranchers of this district.

High and Sheep Rivers—The winter of 1901-2 was not unfavourable to the ranging of stock and the losses consequently were lighter than during the previous season, being about 5 per cent., but became somewhat heavier in the spring amongst breeding stock and calves. The proportion of breeding stock which raised calves was about the same as the year before, that is, about 50 per cent. on the range and 75 per cent. in small bunches. Cattle were in good condition at the beginning of the

present winter, but the grass was not uniformly well cured on all parts of the range. There was little change in the prices realised for cattle, which sold for from 3 to $3\frac{1}{2}$ cents per lb.

Red Deer River East.—There was a winter loss of about 1 per cent only, and the increase amongst closely herded cattle was about 35 per cent. of the whole, or 70 per cent. of the breeding stock. Both the quantity and quality of the hay secured was over the average. The grass cured well on the prairie and cattle were in fine condition to winter. Beef steers averaged something over \$47.00 per head and breeding stock was worth from \$26.00 to \$32.00. The health of cattle was good except that a number were affected with blindness for a couple of months, but became all right again. Coyotes were troubling the young calves.

Calgary and Bow River West.—Winter losses have been placed at from 3 to 7 per cent., but it is stated that the storms on the 11th and 19th May destroyed fully 15 per cent. of early calves and foals, and at Cochrane proved fatal to about 25 per cent. of the dogies. The average of the natural increase is probably about 60 per cent. In some bunches only forty-five cows in a hundred had calves, but in others 70 per cent. increase was reported. A great deal more than the average quantity of hay was put up, but most of the early cut was spoiled by rain. A great difference of opinion seems to exist as to whether the grass cured well or not, but evidently it did so, much better on the plains than amongst the hills, and on the whole is in better condition than it was in the previous autumn. Early spring beef sold at 4 to $4\frac{1}{2}$ cents on foot, and at $3\frac{1}{2}$ cents for steers and 3 cents for dry cows at later dates. These prices would be about half a cent advance over last season's. The usual number of cases of black leg and lumpy jaw occurred, also some hoof disease due to the wet season. There were also a number of casualties due to the same cause, such as miring and drowning. It is considered that the heavy rains and snow in summer interfered very much with the success of breeding operations, and hundreds of dogies died within a couple of days of their arrival.

Northern Alberta.—There was only about 4 per cent. of loss in bands held under ranching conditions and, as the quantity of hay available for the feeding of stabled stock was ample, there was practically no loss amongst them. The calf crop was fairly good and may be said to have been fully up to the average. An abundance of hay of good quality was secured during the summer, and the grass on the southern prairie sections was much better cured than in 1901. Cattle were in fine condition at the approach of winter and no diseases were prevalent. The loss amongst horses was extremely heavy from swamp fever, being placed in some districts at 50 per cent. of those in bands. The prices realised for beef cattle ranged from $2\frac{1}{2}$ to 3 cents per lb., and would not appear to be in advance of those of the previous season.

ADMISSION OF CANADIAN STORES TO GREAT BRITAIN.

The past year witnessed what was probably the most determined agitation on record for the abrogation of the law under which Canadian cattle must be slaughtered on arrival at British ports. A section of the

Canadian press seems to have completely misunderstood the situation. Prior to the exclusion of Canadian live cattle in 1892 Canada was one of the few countries that enjoyed the privilege of sending store stock to Great Britain. The United States was at the time collecting material to prove that they were again free from disease and ready to be placed on the same basis as Canada. The alleged outbreak of pleuro pneumonia occurred and Canadian cattle were immediately deprived of the privilege of being sold as stores. The British authorities claim that there never was any attack upon the health of Canadian stock and that there did not seem to be much difficulty in understanding how the disease appeared in the Canadian cattle landed in Great Britain. The supposition was that in some cases quarantine against the United States had not been stringently enforced, particularly at western points where cattle had, it is claimed, been admitted into Canada on the strength of an inspection only which, of course, would not be of the slightest use in detecting pleuro pneumonia in its incipient stages. The Act of the British Parliament of 1895 now prohibits the importation of live cattle from *all* countries. When that Act was passed Great Britain had had four years' experience of the total exclusion of all store stock and, in spite of predictions to the contrary, not the slightest effect had apparently been produced in the price of meat and, as the meat supply was the main consideration involved, the Act in question passed the Imperial Parliament with an overwhelming majority.

The fact that Canada was the last country to enjoy the privilege of the admission of stores was an unfortunate incident, but it is claimed that the geographical position of Canada renders it almost impossible to accord special treatment in this matter. Were Canada surrounded by natural barriers some arrangements respecting the admission of our cattle to British grazing farms might probably again be made, but with an enormous imaginary frontier, stretching for thousands of miles over the prairies, coupled with the close trade relations and large immigration from the United States, the British authorities seem to be quite convinced that the danger would be altogether too great. In any event, the recent outbreak of foot and mouth disease in the New England States will probably settle the matter finally. At least, such appears to be the unanimous verdict of the British agricultural press.

The agitation above alluded to has not, however, been without some result, as the time within which Canadian cattle must be slaughtered after landing has been extended to ten days. It has been asserted that the placing of the embargo on Canadian cattle had the immediate effect of reducing the price of our export stock 30 per cent.; this lost ground has largely been regained during the last ten years, principally by virtue of the higher quality of our stock as compared with 1892. It is, however, argued, with considerable force, that the re-admission of Canadian stores would have a tendency to further expand existing markets as it would enable cattlemen to ship anything that had the required beef conformation *whether in killing condition or not*. It is also evident that whether or not we resort to grain finishing, a rest of a month or two with generous feeding on the other side of the Atlantic would have a most beneficial effect upon the carcass and would consequently increase the value of our stock to the buyer.

Of course, opinions differ as to whether or not the embargo is a blessing in disguise. Some very excellent authorities state that the final

effect of the embargo will be to force the Canadian farmer into grain finishing all cattle before export, and that it will also have a tendency to hasten the development of the dead meat trade. If either of these predictions are realised, and there seems to be every reason why they should be brought about, we may well characterise the action of the British authorities in this matter as a "blessing in disguise." In any event, we shall probably be able to do much towards hastening such a desirable consummation if we devote our best energies to it, even at the expense of carrying on an agitation for a privilege, the value of which to us appears to be open to some serious argument, and which there is hardly the smallest likelihood of ever being conceded in view of the antagonistic attitude of the British press and the large majority of the rural population.

GRAIN FINISHING OF RANGE CATTLE.

I have endeavoured to show above that our chances of having Canadian stores admitted to British grazing farms are decidedly small and that we must, therefore, of necessity adopt either or both of the following remedies. (1) Finish our stores prior to exportation; (2) Encourage the inauguration at the earliest moment of a dead meat trade so that our cattle may be slaughtered while in the pink of condition and exported in carcass. The latter remedy requires time, capital and organisation; while the former may be adopted, or at least initiated, at a moment's notice.

Very complimentary references are made from time to time respecting our range steers, and the opinion is deeply rooted throughout the West that we have little to learn about cattle raising, and that in point of breeding and general conformation our range steers easily hold their own in comparison with cattle raised elsewhere. As independent comment on the subject may be instructive I quote the following extract from an article which recently appeared in a western Agricultural Journal. It may be mentioned that Deptford is the point where the great bulk of Canadian export cattle are handled.

The superintendent of the Deptford lairages says "the chief fault of Canadian cattle is lack of finish and breeding, too old and in some cases too much bone. The flesh is light in colour, and there is not enough of it." Early maturing (by some termed baby beef) stuff is now called for, and commands the highest prices. The Canadian cattle, taken as a whole as seen at the three lairages, are deficient in covering and are bare over the crops, back and loin; lacking in rump and are light in the thighs. Such faults are serious, as the regions mentioned include what are known as "the high-priced cuts." While practically all (sometimes twenty or thirty in a shipment of three hundred or more will have the well-meated, table-like back) show lack of finish, numbers of them show a conformation on which it is impossible to pack meat. Sharp over the crops and along the back, good rain shedders they are, but mighty poor beef carriers, and their ancestry is easily traced. The rancher owning dairybred dogies is to be pitied; he may leave them on the range until four or five and they are then a disappointment to both buyer and seller. The constant praise of Canadian store cattle by the Old Country feeders who once fed our steers gives rise to the following thoughts, either our cattle were better bred, and, therefore, of better conformation than now, or else Canadians are lacking in knowledge of how to feed beef cattle (they may know, but do not put such knowledge to any good use). Beef bred hulls are needed with the tendency to put on thick flesh, easily and early. Bulls that will ensure progeny with wider-sprung ribs, thicker-meated, even-er-covered crops, backs, loins and rumps; cattle with more quality and capable of taking on finish cheaply and quickly. To the above must be

added more and better feed, that feeding to be continued until the animal is finished, not only at such points as the flank, cod, rumps, hooks, but at the finishing points, the shoulders and neck.

Before any real progress can be made in respect to placing Canadian beef on the British market in the most advantageous shape it is very necessary our breeders should realise that grass-finished beef must be slaughtered before embarkation and, if we are to compete with other countries, that all beef exported on the hoof must be grain finished. The opinion seems to prevail that, as we are unable to ripen corn in the Territories, we will experience considerable difficulty in building up a profitable beef finishing industry. While it is quite true that corn is a most valuable factor in any fattening ration it is by no means an indispensable article for the profitable production of beef. It is an undoubted fact that the bulk of the farmers of the Territories today are very sceptical as to the value of oats as a fattening food. The following table, compiled from the results of recent investigations, throws some light on the subject.

DIGESTIBLE Matter In 1,000 lbs. of Various Foods.

Foods	Total organic matter	Nitrogenous substance	Fat	Carbo-hydrates	Albumi-noids
Beans	729	224	12	493	196
Wheat	785	102	16	667	88
Oats	598	89	45	464	82
Barley	706	74	19	613	69
Maize	787	79	44	664	73
Wheat bran	584	110	27	447	89
Oat straw	410	16	6	387	11
Barley straw	428	9	6	413	6
Wheat straw	572	8	5	359	
Turnips	68	6	1	61	1

Investigation seems to demonstrate that, with the enormous crops of oats that can be produced in Saskatchewan and Northern Alberta, the necessity for corn is not apparent. Barley also is an excellent fattening feed and is supposed to produce a better quality of meat where this cereal forms part of a balanced ration. It is very true that neither oats or barley will compare favourably in point of yield per acre with corn, but the difference is not anything like as great as appears at first sight. The average yield per acre of corn in the greatest corn producing State of the Union (Kansas) for the last ten years is 19.71 bushels or 1,104 lbs.; the average for Iowa 30.93 or 1,728 lbs., and Nebraska 23.21 bushels or 1,300 lbs. The general average of oats for the North-West Territories for the last five years, as far back as there are any official records, is 35.30 bushels per acre or 1,190 lbs., of barley 25.60 or 1,229 lbs. In the Edmonton district the average of oats for 1902 was 28.97 and for 1901 67.50 bushels per acre. Barley in the same district yielded from 24 to 52 bushels per acre as an average since 1898. Corn weighs 56 lbs per bushel, barley 48 and oats 34. After making allowance for the increased weight per acre, but admitting that pound for pound there is equally as much, if not more, feeding value in oats and barley than in corn, it cannot for one moment be conceded that feeding material is any scarcer or dearer on the Canadian side than on the American side and,

consequently, no good reason can be assigned why the industry of finishing cattle should be the backbone of agriculture in the Central States while it is an almost unknown quantity on the Canadian side.

In order to arrive at some sort of an estimate as to the possibilities in the way of finishing range cattle the Department entered into negotiations with the Federal Government, through Mr. F. W. Hodson, Dominion Live Stock Commissioner, with a view to having a carload of selected "long" two-year-old steers shipped east in December, placed in the proper hands for feeding and exported during the coming spring. While it may be argued that, as soon as an extensive feeding industry is developed in that portion of Canada lying west of Lake Superior, we will probably experience some difficulty in getting sufficient feeders to fill the demand and that it is, therefore, unlikely the business of finishing cattle in transit in Ontario will develop to any great extent, the Department still considered it advisable to have the first systematic feeding experiment conducted in that province, as it was indispensable that a very careful account should be kept of the labour and feed involved which could much better be done at the Ontario Agricultural College than by any private individual in the West. That institution was unable to take the whole of the carload of these steers and arrangements were, therefore, made to half them with Major Hood, who resides in the vicinity of Guelph, and who is regarded as one of Ontario's foremost feeders. The whole experiment is under the personal supervision of Professor Day and Mr. Hodson, who have displayed a great deal of interest in the matter. I would strongly recommend that, when the final figures are available, a bulletin be prepared on the subject giving actual results, and also that steps should be taken to have one or two experiments conducted in the West during the present year. While it is true that some grain feeding is now being done on isolated farms throughout the West, the result of such efforts are only of very little public interest owing to the fact that it is difficult or almost impossible to get at the actual figures involved and, in order to present a proposition of that kind to the farmers of the West in its true light, it is absolutely necessary that the Department should be in a position to cite cases where every care has been taken to ascertain the actual quantity of grain and other feed consumed, and make a careful estimate of the value of the labour involved. These facts, with the actual weight and value of the cattle before the experiment commenced, and the weight and market value at the close of the feeding test, would convey information of value and enable farmers of the West to decide whether it would pay them to give attention to this matter. It goes without saying that private individuals will not take the trouble to keep exact records of tests of this kind, hence the necessity of having such work conducted under the auspices and close supervision of the Government.

In the United States feeders usually hope to make a profit of about \$15.00 per head. As a rule the period of feeding covers from 120 to 190 days according to the weather, materials used and the capacity of the stock, which vary greatly, being very high in well bred cattle and lower in cattle of the class of the Mexican rangiers. The amount of gain is usually from two to three hundred pounds but, in addition to the actual bulk gained, a large profit is made owing to the increased market value of the beef and the well finished animal at the time of the year when he is placed on the market. We are entirely too prone on this side of the

line to imagine that the only feeding material in the United States is corn. As a matter of fact oats, barley, flax, ensilage, alfalfa, prairie hay, straw, etc., all enter into feeding operations in the various portions of the Central States, according to what grows best in each locality, and a great many of the agricultural colleges are busily engaged upon steer feeding investigations with a view to ascertaining what is the most profitable cereal and ration under given market conditions; a question which has by no means as yet been determined.

LIVE STOCK MARKETS.

It is an accepted business axiom that the cost of buying is paid by the producer. The price the consumer pays is, as a rule, governed by values elsewhere and possibilities in the way of successful competition. Such being the case it must be admitted that the western rancher pays an uncommonly high price for the marketing of his cattle. Under the present system buyers travel laboriously through the country picking up a few cattle here and a few there. Every little bunch or every head is bargained for separately and, as the ultimate sale of these animals is by weight, it may be concluded that in sheer self defence the buyer is compelled to purchase on the safe side. The inevitable result is that the rancher stands a greater chance of losing than of gaining in selling his cattle at so much per head instead of by weight. That the present practices should prevail while the cattle business was in the pioneer stages might be expected but, with an export business amounting to somewhere near three million dollars last year, it would appear that the time is rapidly approaching, if it is not already here, when the buying and selling of cattle should be conducted on a more economical and rational system.

It is encouraging to note that a Montreal syndicate is now negotiating with the City of Calgary for the erection and maintenance of stock yards where periodical auction sales are to be conducted. Such facilities would enable stockmen to consign their animals to local commission firms and have them sold by weight on market days. This is the system followed in all live stock centres in the United States and is undoubtedly the most convenient and satisfactory manner of handling cattle, for buyer as well as for seller. It is perhaps true that the time is not yet ripe for the concentration of the western cattle business at any one point or points, with daily markets, but all things must have a beginning, and it is sincerely to be hoped that the principle will be put to the test on this side of the line, even to the extent of a weekly or semi-monthly market day.

At the present time we have practically no live stock centres in the West. Export shipments are now made from any convenient point in the district where the cattle are gathered that possess the requisite yard facilities. The effect of establishing markets and concentrating the business would be a tendency to encourage meat packing and kindred industries. A determined effort is being made by the City of Toronto to concentrate the killing of live stock for the Canadian dead meat trade at that point. Should any such attempt be made I feel certain that it would not work out in the interest of Western Canada. It should be remembered that while Chicago, the chief United States live stock centre, may be considered an eastern point, the cases of Canada

and the United States are not at all analogous. In the first place the United States cattle business is not by any means concentrated at Chicago. Westerly points like Omaha and Kansas city, fairly contiguous to the western ranges, do an enormous packing business. Toronto is thousands of miles removed from the chief source of supply, namely, Western Assiniboia and Southern Alberta, and the conversion of western steers into dead meat at a point like Toronto would be of no material advantage to the producer owing to the fact that the bulk of the shrinkage and deterioration would take place in a grass fed beast upon the long, trying railway journey between the West and Ontario. Another important point to remember is that the concentration of the United States packing business at points lying far to the east of the cattle ranges has been the outcome of natural conditions, namely, the presence of corn and other feed producing districts right around each of the chief marketing points. In estimating the advantages of any particular point for the concentration of the cattle business the chief consideration must of necessity be its convenience for the buying, rather than the selling, public. Sight should not, however, be lost of the fact that if such a point is established near feeding districts the bulk of the unfinished cattle will be purchased by farmers engaged in feeding operations who, after finishing the animals, will return them when the regular buyers purchase them for export. This is the regular procedure at United States marketing points and, as this practice will also assuredly be adopted on the Canadian side within very few years, the cattle carrying and selling business should be organised accordingly.

From a topographical as well as a climatic standpoint the position of affairs in the Canadian North-West is an unique one. Our chief grain producing and finishing districts *lie to the north and immediately to the east* of our cattle ranges, and any attempt to concentrate the cattle business at points far removed from these districts will assuredly end in failure. It is probable that extensive stock yard and marketing facilities will have to be provided at least at two or three points in the West, one point to cover part of Western Assiniboia and Southern Alberta contiguous to the feeding farms of Northern Alberta, one to serve the Saskatchewan Valley and another to serve Eastern Assiniboia and the feeding portions of Manitoba. The only feeding field which is apparently ripe for action now would seem to be Northern Alberta. Some feeding might be done east of Edmonton in the Saskatchewan Valley, but convenient transportation facilities to bring the farmers in touch with ranche cattle are not yet available. Eastern Assiniboia and the Province of Manitoba are at the present time too busy growing wheat to pay any attention to the cattle feeding business. Apart from the natural fitness of Northern Alberta for the grain finishing of cattle for export, and its favourable geographical position, circumstances will rapidly force the farmers of that part of the Territories to devote considerable attention to this line of business. The proposition is undoubtedly a good one from a business standpoint and would readily command attention on its own merits, but the increasing difficulty that farmers in Alberta will find in securing a permanent market for their grain output will gradually bring the matter to a head and force them to convert their coarse grains into meat.

DEAD MEAT TRADE.

The most economical and satisfactory way of handling our beef would probably be as dead meat. Tops available in the fall of the year could be slaughtered and, if this system were coupled with extensive feeding operations all through the mixed farming portions of the Territories, Canadian beef would soon find its proper level in the British market. But even with these arrangements perfected to the finest point we would still be far from competing on quite fair ground with the United States, where there is an enormous annual output of cattle marketed at central points like Chicago and Omaha, which admits of only the superior animals being picked for export, the culls going into use for home consumption in various forms. Some deterioration necessarily takes place in the beef due to the process of chilling, but this is more than compensated for by the value of the offal and by the influence of the industries dependent thereon as well as by the lower transportation expenses. Cold storage systems on ocean steamers have been perfected during recent years by means of the introduction of chemical freezing plants, doing away with the necessity of carrying large cargoes of ice. A strong argument in favour of a dead meat trade is the stability given to the cattle business when conducted on such a basis. We have during the past year had an excellent illustration in the United States of the effect upon a live cattle trade of an isolated outbreak of a contagious or infectious disease. The outbreak of foot and mouth disease which took place in the New England States scarcely disturbed the equilibrium of the United States export, the only visible effect being a decrease in live stock shipments and an increase in dead meat shipments. The value of United States live stock exports during 1900 was somewhere over thirty million dollars, while the dead meat exports, including fresh, salted and pickled meat, reached about thirty-eight million dollars, the fresh meat alone being valued at twenty-nine and a half million dollars. It is not pleasant to contemplate what the effect would be if a similar outbreak should at any time occur in Canada with the Territorial export business exclusively on a live stock basis. Through prompt and effective measures the United States authorities were able to get the outbreak under control within a short time. Even with the most drastic action on the part of the Federal authorities, should we suffer a similar visitation anywhere in Canada, we might not be equally fortunate and, if the disease lingered with us for a long time, our cattlemen would suffer considerable inconvenience and probably loss.

DAIRY INDUSTRY.

In spite of the somewhat unfavourable season this industry has been fairly prosperous during the past year. Owing to the fact that the agreement under which the Dominion Government conducts the co-operative dairy stations throughout the Territories is limited to a definite period, much uncertainty has prevailed amongst creamery patrons as to the future of their operations. The consensus of opinion seems to be that it would be a fatal blow to the industry if the various creameries were again to fall into the hands of private concerns, or even corporations. Whatever has been done in the way of developing dairying in other

countries has been strictly along co-operative lines under the closest government supervision. We have now in the Territories a system working to perfection and any change from this would appear to be distinctly a retrograde movement. At a meeting of the Innisfail Union Butter and Cheese Manufacturing Association the following resolution was unanimously carried :

That this Board views with regret and alarm the decision of the dairying branch of the Department of Agriculture to withdraw from the management of the North-West creameries ;

That we are thoroughly satisfied with and have every confidence that Government management alone will be acceptable to the patrons, and that if it is withdrawn the result will be dissatisfaction and failure. We therefore earnestly press upon the Department the desirability of continuing the management permanently, with such changes in detail as may from time to time be mutually agreed upon ;

That, though much has been accomplished by the Department, much yet remains to be done before the system can be said to give entirely satisfactory results, and that our ultimate aim—the turning out of an article which will top any market—can only be obtained under Government management and control.

The Secretary of that association was instructed to forward copies of the above resolution to all other Territorial creameries operated under government management with a view to securing united action, and a suggestion was also made to the effect that a Territorial Dairymen's Association should be formed. There can be no question whatever that the time has arrived when the dairy industry of the Territories ought to be organised along the same lines as the Live Stock Breeders, and I would strongly recommend that during the year arrangements be made to call a meeting at some central point with a view to carrying out the formalities of organisation.

Through the courtesy of Professor Ruddick, Chief of the Dominion Dairy Division, I attach a statement showing a summary of the business done at the various stations throughout the Territories, under the control of the Dominion Government, for the seasons 1898 to 1902 inclusive.

SUMMARY of the Business for Season of 1902 at the Dominion Experimental Stations in the North-West Territories.

NAME OF STATION		No. of patrons	Inches of cream supplied	Pounds of milk supplied	Lbs. of butter manufactured	Average price realised at creamery	Mfg charge per pound	No. of days in operation	Gross value of product
						Cts.	Cts.		
Calgary.	1898	59	15,627	125,186	19,389	20.25	4	168	\$3,926 70
	1899	43	24,806.7		24,677	21.56	4	174	5,319 47
	1900	65	31,624.2		34,099	20.20	4	178	6,893 20
	1901	64	27,427.6		28,178	19.28	4	163	5,435 20
	1902	41	16,981		19,162	23.89	4	184	4,578 48
Churchb'dge	1898	70	21,429		22,223	18.85	4	111	4,189 21
	1899	84	29,739.6		31,674	20.19	4	167	6,396 77
	1900	127	61,909.7		65,325	20.02	4	188	13,084 80
	1901	233	107,427.5		121,419	19.14	4	202	23,239 68
	1902	264	98,105.1		116,630	18.51	4	198	21,589 88
Edmonton	1898	48	12,346	115,036	17,068	18.80	4	156	3,209 19
	1899	49	14,149.9	70,144	17,322	20.96	4	160	3,631 56
	1900	51	18,693.7		17,089	20.60	4	168	3,520 61
	1901	59	17,210.9		16,508	20.00	4	153	3,302 29
	1902	37	13,012.8		14,217	19.93	4	143	2,833 92
Grenfell.	1898	77	33,179		42,838	19.04	4	149	8,156 47
	1899	71	32,204.4		39,154	20.28	4	152	7,943 02
	1900	83	42,031.9		49,817	20.00	4	173	9,963 78
	1901	89	43,907.1		53,119	19.12	4	159	10,159 93
	1902	68	26,915.2		33,595	18.16	4	146	6,108 25
Innisfail.	1898	105	39,003	437,405	57,717	20.40	4	184	11,775 55
	1899	156	68,924.8	349,682	86,040	20.69	4	184	17,805 53
	1900	130	84,429.2		89,402	20.05	4	184	17,926 15
	1901	131	83,588.3		90,484	19.16	4	184	17,338 49
	1902	118	90,329.6		99,245	20.86	4	184	20,709 49
Maple Creek	1898	15	11,621		12,362	20.06	4	158	2,479 99
	1899	12	7,283.8		7,921	21.41	4	128	1,696 56
	1900	15	8,265.8		8,806	22.22	4	151	1,956 68
	1901	10	5,035.8		5,792	20.83	4	111	1,206 98
	1902								
Moose Jaw	1898	39	31,580		37,999	20.00	4	179	7,603 53
	1899	34	27,974.7		34,915	20.48	4	191	7,152 62
	1900	31	24,826.9		32,285	21.50	4	195	6,943 86
	1901	24	15,542.1		20,500	20.19	4	182	4,140 21
	1902	14	13,244.8		16,741	20.70	4	185	3,466 28
Moosomin.	1898	47	14,567		14,523	18.55	4	134	2,695 28
	1899	40	7,725.6		8,461	20.67	4	118	1,748 34
	1900	67	22,836.5		24,296	20.23	4	152	4,912 62
	1901	122	40,283.0		42,831	19.15	4	156	8,205 04
	1902	38	9,926.9		11,843	17.87	4	136	2,116 85
Olds.	1898						4		
	1899						4		
	1900	31	11,597.6		11,007	20.00	4	93	2,201 70
	1901	30	22,195.5		22,166	19.11	4	169	4,236 98
	1902	49	38,892.1		42,637	20.73	4	217	8,841 31
Prince Albert	1898	31	10,717	7,237	12,644	18.51	4	143	2,340 64
	1899	22	10,366.5		13,758	20.44	4	136	2,812 54
	1900	38	14,146.9		18,792	20.26	4	139	3,808 90
	1901	40	11,763.0		16,223	19.50	4	118	3,164 09
	1902	35	11,269.5		14,527	18.91	4	96	2,748 28

SUMMARY of the Business for Season of 1902 at the Dominion Experimental Stations in the North-West Territories.—*Continued.*

NAME OF STATION		No. of patrons.	Inches of cream supplied	Pounds of milk supplied	Lbs. of Butter manufactured	Average price realised at creamery.	Mfg charge per pound.	No. of days in operation.	Gross value of product.
Qu'Appelle	1898	66	26,713		26,188	18.70	4	150	4,898 22
	1899	45	17,158.1		16,561	20.22	4	148	3,348 45
	1900	57	23,974.7		24,647	20.16	4	190	4,969 05
	1901	62	24,879.6		28,070	19.33	4	200	5,431 60
	1902	63	18,120.6		20,889	18.77	4	185	3,923 34
Red Deer....	1898	76	28,253	217,572	42,878	19.84	4	184	8,507 54
	1899	110	46,676	157,306	62,142	20.87	4	184	12,968 23
	1900	92	49,475		63,887	20.24	4	182	12,933 18
	1901	111	47,665.2		60,450	19.16	4	188	11,583 12
	1902	83	43,481.4		55,091	20.54	4	184	11,320 28
Regina	1898	49	24,301		25,450	19.05	4	157	4,849 26
	1899	47	21,181.9		23,051	20.04	4	160	4,615 33
	1900	49	24,267.8		24,645	20.18	4	182	4,973 95
	1901	77	32,563.6		34,601	19.43	4	187	6,724 41
	1902	63	24,327.7		25,952	18.82	4	180	4,884 44
Saltcoats	1898	76	21,343		18,779	18.15	4	139	3,409 85
	1899	45	13,898.3		13,190	20.07	4	139	2,647 58
	1900	53	19,771.5		18,650	20.09	4	156	3,747 34
	1901	53	16,618.9		15,117	19.21	4	153	2,904 37
	1902	32	6,633.9		6,490	17.99	4	109	1,167 78
Saskatoon...	1898	18	8,631	16,581	10,202	18.92	4	153	1,930 49
	1899	13	7,929.1	14,406	9,197	20.49	4	146	1,884 46
	1900	10	9,411.5		10,398	20.14	4	161	2,094 97
	1901	8	4,437.1		4,372	19.35	4	137	846 18
	1902								
Tindastoll	1898						4		
	1899	66	6,350.2	162,406	14,655	21.78	4	112	3,192 51
	1900	75	37,374.1	9,798	45,770	20.04	4	184	9,173 08
	1901	41	28,235.8		31,527	19.15	4	184	6,037 87
	1902	61	42,055.5		48,086	20.74	4	172	9,977 71
Wetaskiwin.	1898	58	8,576	456,914	27,136	20.08	4	192	5,449 65
	1899	71	14,815.4	403,581	32,350	20.99	4	184	6,789 29
	1900	66	16,384.1	36,413	33,770	20.01	4	184	6,787 70
	1901	27	7,918.1	80,579	12,185	19.17	4	160	2,338 10
	1902								
Whitewood	1898	85	41,271		44,308	19.07	4	166	8,450 52
	1899	89	30,276.5		42,284	20.07	4	175	8,485 70
	1900	68	32,892.4		37,038	20.07	4	183	7,434 50
	1901	76	30,848		33,700	19.14	4	150	6,470 68
	1902	37	6,272.5		6,982	18.39	4	121	1,291 11
Yorkton	1898	91	38,961		35,413	18.26	4	137	6,466 61
	1899	50	18,680		17,491	20.21	4	143	3,535 19
	1900	61	27,075.5		27,329	20.00	4	165	5,468 71
	1901	88	33,410		35,151	19.31	4	146	6,718 38
	1902	11	430.3		390	18.81	4	25	73 36
The Territories	1898	1051	396,606	1,657,542	484,948	19.22	4	2,934	93,740 67
	1899	1072	407,095.8	1,303,221	501,907	20.70	4	3,035	103,492 32
	1900	1169	560,989	46,211	637,052	20.32	4	3,208	123,794 78
	1901	1345	600,957.1	80,579	672,393	19.40	4	3,102	129,483 60
	1902	1014	449,998.9		532,477	19.64	....	....	104,630 76

STOCK INSPECTION.

The following schedule shows the details of the inspection of cattle and horse shipments for the year as well as a comparative statement showing the figures for previous years.

The inspection of butchers' records of brands of animals slaughtered has been performed by the North-West Mounted Police, and I understand that no infringements of the Ordinance have come to the notice of that force during the year.

Stock Shipments.—Comparative Statement.

DISTRICTS		EXPORTS				LOCAL SHIPMENTS			Total	
		East		West		Cattle				
		Cattle	Horses	Cattle	Horses	Stockers to Ranges	Others	Horses	Cattle	Horses
East Assiniboia	1901	6,611	73	82	...	4,378	262	18	11,333	91
	1902	9,117	201	305	...	4,300	158	27	13,880	228
West Assiniboia	1901	9,322	527	227	8	4,148	1,292	900	14,989	1,435
	1902	17,158	868	280	15	2,344	2,824	3,703	22,606	4,586
North Alberta.	1901	36	21	1,254	8	1,129	1,083	8	3,502	37
	1902	465	77	1,473	11	740	2,334	96	5,012	184
South Alberta.	1901	13,631	3,518	6,627	297	3,046	844	1,655	24,148	5,470
	1902	21,557	3,270	7,505	418	475	4,272	3,874	33,809	7,562
Saskatchewan.	1901	1,973	.....	.....	.....	1,517	.....	.....	3,490	.....
	1902	2,193	.....	.....	.....	1,092	295	.....	3,580	.....
The Territories	1901	31,573	4,139	8,190	313	14,218	3,481	2,581	57,462	7,033
	1902	50,490	4,416	9,563	444	8,951	9,883	7,700	78,887	12,560

Stock Shipments.

SHIPPING POINTS	INSPECTORS	EXPORTS				LOCAL SHIPMENTS		
		East		West		Cattle		
		Cattle	Horses	Cattle	Horses	Stockers to Range	Others	Horses
Fleming	L. Galbraith	20	...	...	...	492	17	10
Moosomin	R. Stewart	135	5	305	...	383	1	...
Red Jacket	B. Anderson	...	...	...	...	...	...	...
Wapella	G. H. Morrison	30	...	...	...	302	20	4
Whitewood	Wm. Gemmell, V.S.	840	26	...	...	433	28	...
Broadview	Jas. Brannon	160	...	...	...	141	...	...
Grenfell	John Walker	40	...	...	...	1,032	16	10
Wolseley	G. H. Hurlburt	125	...	...	...	429	30	...
Qu'Appelle Station	J. A. Lidgate	564	...	...	...	633	37	3
Balgonie	J. R. Agar	...	...	...	...	193	9	...
Churchbridge	B. D. Westman	322	...	...	...	33	...	...
Langenburg	C. M. Langer	108	...	...	...	229	...	...
Saltcoats	W. B. Smithett	19	...	...	...	...	...	...
Yorkton	T. V. Simpson, V.S.	3,778	170	...	...	...	...	...
Manor	W. G. Davis	362	...	...	...	...	...	...

Stock Shipments.—Continued.

SHIPPING POINTS.	INSPECTORS	EXPORT				LOCAL SHIPMENTS		
		East		West		Cattle		—
		Cattle.	Horses.	Cattle	Horses.	Stockers to Range.	Others	Horses
Arcola	J. G. Hopper	208						
Oxbow	H. Paine	65						
Alameda	A. R. Hopper							
Estevan	John Ellis							
Weyburn	W. H. Hunt	53						
Cattle driven to points in Manitoba for shipment		2,288						
EAST ASSINIBOIA		9,117	201	305		4,300	158	27
Regina	S. F. Callender	537						
Lumsden	A. S. Balfour							
Dundurn	L. Carson	1,127				387	80	
Moose Jaw	James Thomson	40	24			206	50	
Swift Current	Wm. Milburn	1,389	56			56		80
Maple Creek	W. A. Douglas	5,146	309				83	535
Medicine Hat	J. H. G. Bray	6,419	479	280	15	1,695	2,611	3088
Cattle driven to U.S. points for shipment		2,500						
WEST ASSINIBOIA		17,158	868	280	15	2,344	2,824	3703
Olds	W. Dean	168		450		136	688	15
Innisfail	H. A. Hetherington			100				
Red Deer	A. B. Nash			94	2	16	243	19
Lacombe	J. N. Burdick	40	59	285			497	24
Ponoka	A. Reid	43	18				21	2
Wetaskiwin	P. A. Miquelon	173		291	9	113	595	34
Leduc	J. S. Johnson						116	
Edmonton	W. R. Howey	41		253		475	174	2
NORTH ALBERTA		465	77	1,473	11	740	2,334	96
Gleichen	A. F. M. Brooke	898	339	164	1		117	116
Calgary	R. A. Jones	1,448	662	3,781	218	90	231	839
Cochrane	W. B. Elliott	1,099	24	375	24		97	35
Morley	F. Ricks	234						
Okotoks	John Patterson		16				18	20
High River and Cayley	D. E. Riley	4,250	88	1,983	7		1,718	965
Clareholm	C. Sharples	2,910		36			292	
Macleod	R. G. Mathews	3,456	1,162	805	14	113	44	1247
Pincher	John Herron	1,468	306	105	70	272	646	152
Lethbridge	Thos. Scott	4,294	673	256	84		1,109	500
Coutts	H. Tennant							
Cattle driven to U.S. points for shipment		1,500						
SOUTH ALBERTA		21,557	3,270	7,505	418	475	4,272	3874
Prince Albert	Wm. Plaxton	418				1,042	295	
Duck Lake	W. J. Campbell	332				50		
Rosthern	J. H. Klassen							
Saskatoon	D. W. Garrison	1,443						
SASKATCHEWAN		2,193				1,092	295	

SHEEP.

A full report on this subject will be found in the report of the Secretary of The Territorial Sheep Breeders' Association in the Appendix hereto.

IMPORTATION OF RAMS.

In last year's report I made reference to the advisability of taking steps to facilitate the importation of rams. In order that flockmasters throughout the Territories might enjoy the same privileges as those extended to cattle breeders in the matter of importations of small shipments of purebred bulls, the Department made arrangements whereby rams would be brought up from the Province of Ontario to the Territories at the uniform rate of \$2.00 per head to include feed, care and transportation. The Canadian Pacific Railway authorities readily agreed to place a car at the disposal of the Department, free of charge, from North Bay to the Territories, for this purpose. As soon as the arrangements were completed the following circular advertising the scheme was issued:

I am directed to call your attention to the importation of purebred rams, under Government auspices, which will be carried on under an arrangement with the Canadian Pacific Railway Company, whereby the rams (which must be delivered at some convenient point on the said railway in Ontario) are gathered and forwarded by carload lots to the West in charge of a reliable man and distributed at desired points upon the C.P.R. main line or branches in the Territories. *The Government and railway company defray all expenses over and above the sum of \$2.00 per head, which must be deposited by the applicant.* As soon as parties are in a position to make application to the Department for the transportation of stock, blank forms will, upon notification, be supplied them, which are to be filled out and returned to this Department, accompanied by the sum of \$2.00 for each ram.

Flockmasters availing themselves of this offer will be expected to make their own arrangements, through friends or otherwise, regarding the purchase of their rams. If unable to do so, they will, upon application to the Department, be placed in communication with the Secretary of the Live Stock Associations of Ontario, who will purchase for them what stock they require for a nominal commission.

It is not necessary for applicants for transportation of rams under this arrangement to make their purchases in the East prior to filing their applications with the Department. If anyone desires to obtain the reduced rate in question, he should file his application at once, and he can then purchase what stock he requires in the East at his convenience. *As the shipment will not take place until the end of November, there will be ample time to complete such arrangements.* Should he fail to do so, the deposit in the hands of the Department will be returned to him.

As above indicated, only male stock can be accepted for transportation under the arrangement outlined, and no more than four head can be shipped to any one applicant at the \$2.00 rate. The Department will, however, be able to arrange for the transportation of purebred ewes also, on the understanding that applicants pay the full proportionate cost of transportation. All stock will be accepted for transportation at *owner's risk only*; but every precaution will be taken to ensure safe delivery.

As the number of rams which it is intended to bring into the Territories during the coming autumn under the foregoing scheme is at present limited, applications will be considered in this Department on a basis of priority.

About the same time the Territorial Sheep Breeders' Association decided to inaugurate an annual ram sale and with that end in view arranged to gather at Medicine Hat all home grown purebred rams in the Territories available for sale and, in order to have a large enough sale to attract buyers from a distance, a number of rams were also imported from

Ontario. The Department naturally used its influence to make this sale a success, and those applying for the transportation of rams under the circular alluded to were made acquainted with the facilities that would be offered at the association sale for the purchase and exchange of rams; the result was very little use was made of the facilities furnished for bringing rams west from Ontario. On the last of November, which was the date for the shipment to start for the West, all applicants, except three, had had their wants supplied at the Medicine Hat sale, two of which were for one ram each and the other covering transportation on two head. On account of the reduced number of sheep to be imported the Department was not, of course, justified in making use of the free car granted by the Canadian Pacific Railway Company.

SUMMARY OF DISTRICT REPORTS.

Eastern Assiniboia.—The majority of the flocks held in this district are small; 50 per cent. of those reported containing less than 50 head and 25 per cent. between 50 and 100 head. New breeders are not numerous; in fact many of those who have held sheep are selling out because of the depredations of prairie wolves. Losses from this cause have been very heavy during the past season and many lambs have fallen victims to the pests. The weather proved favourable or the reverse for lambing according to the time at which this occurred. Many of the lambs were too early and others too late. In March some bad storms occurred and there was considerable wet weather later. In a number of instances the ewes had no milk for their early lambs, which was doubtless due to lack of quality in the fodder. Rusty straw was blamed in some cases for the poor condition of the flocks. The weight of fleece has in some flocks been as low as 4½ lbs. and in others as high as 10 lbs., varying according to the breed and condition of the sheep; it was somewhat lighter than the yield of the previous year. Prices for wool also have been half a cent or more lower than last season and ranged from 6 to 12 cents. About Saltcoats lambs sold at \$4.00 and yearlings from \$5.50 up. In a general way the health of sheep throughout the district has been good, although in one flock scours in lambs appeared to be contagious.

Western Assiniboia.—This is the only district in which there has been any increase in the number of flocks, and here are the lands reserved for sheep ranching. The bands are large, 65 per cent. being over 1000 head, 25 per cent. between 500 and 1,000, and 10 per cent. under 500 head. The smaller bunches belong principally to new comers. The natural increase in the flocks was considerably larger than during the previous year, although on a number of ranches abortion was prevalent; but the cause is somewhat obscure. Unfavourable weather for lambing was reported by some flockmasters while others found conditions favourable, as the lambing was late or early. There was a good deal of cold rainy weather about the beginning of May. During the summer the lambs on some of the ranges suffered from spear grass and there was some foot-rot amongst the sheep. It was reported that losses had occurred from sheep drinking alkali water but it is more probable that the cause was poisonous weeds growing by the water edge. Examination of

some of these watering places where fatalities occurred showed *cicuta occidentalis*, otherwise known as water hemlock or poison parsnip, growing amongst the grass. Prairie fires are year after year sweeping the ranges and seriously restricting the winter grazing. The price paid for wool in the Maple Creek and Medicine Hat districts averaged about 8½ cents which would be quarter to half a cent better than the previous year, but in the Willow Bunch country only 7 to 7½ cents was realised, which was half a cent less than in 1901. The average weight of fleece sheared was slightly less than usual, being under 5½ lbs.

Northern Assiniboia.—The flocks in this district are few and small, 60 per cent. of them being of less than 50 head and the balance being mostly under 100 in a band. The number of lambs raised was a considerable improvement on the spring before, and by most of the owners the weather was considered favourable; but this largely depended on the date lambing was arranged to come on, and the largest holder in the district complained of too much cold rain. In some flocks the lambs were weak and thin but no diseases were prevalent. Coyotes proved troublesome as usual throughout the country. The average weight of fleece was 7 lbs. and the price was very variable, ranging from 4 to 10 cents at various points, which made it lower than last season's by a cent or two. The small quantity of wool offered is no inducement to buyers to come in and consequently there can be no regularity in prices; and more especially is this the cause where there is no uniformity in the quality or class of wool produced, all breeds and grades of sheep being represented. There is a tendency on the part of owners to improve their flocks by the importation of more purebred rams.

Southern Alberta.—South of Lethbridge a number of large flocks are still held under ranching conditions but the range is becoming too much cut up and there is little chance of the industry increasing to any great extent in that locality. The abundance of rain and stormy weather caused the loss of many lambs; in one instance 4,000 succumbed to these unfavourable conditions. No disease has been reported, with the exception of foot-rot, but a few sheep have been lost through spear grass and also some from felt balls forming in the stomach after feeding heavily on the flowers of the crocus anemone. The foundation stock in the larger bunches was mostly of the merino breeding which is being crossed with purebred rams of the Oxford, Shropshire and Rambouillet breeds. The average weight of fleece was slightly greater than in the clip of 1901 and varied in the several flocks from 4·6 to 9 lbs. The prices realised were mostly half to three-quarters of a cent lower, ranging from 7½ to 10½ cents.

Saskatchewan.—It is probable we would be over estimating the number of sheep in this district by placing it at 2,000, held by about two score of farmers. A large portion of the country is becoming very brushy, and, with a rank herbage to favour the coyotes, the flocks are sadly decimated. The lambs dropped were more numerous than during the previous season and the weather was favourable for the early lambing which seems to be the custom. Snow on the 3rd and 4th of June in the northern parts was an unfavourable feature of the season. No disease of any kind was prevalent. The average weight of fleece shorn seems to have been about the same as in 1901, and the price received for it was 10 cents at points adjacent to the railway, or to Doukhobor villages, and from 4 to 6 cents at outlying places.

SWINE.

As the Territories become more densely settled and curing establishments are erected furnishing a cash market for pork, farmers show a tendency to go more extensively in for swine raising. There is an almost unlimited field for the production of bacon and hams in the West. The total import into Canada of pork products during 1901 was eleven million pounds. During 1902 the importation to points west of Winnipeg alone from the United States was 526,000 lbs., and it is safe to conclude that an equal quantity of lard came into the country and that a large quantity of green bacon was also imported from the Province of Ontario. It will surely pay our farmers to ponder over these figures.

It would appear to be very desirable that an effort should be made during the coming season to organise the breeders of swine throughout the country, forming a Territorial association along the same lines as those already in existence in the interest of cattle, horses and sheep. Such an association would have it in its power to do an educational work the benefits of which can hardly be over estimated. The kingdom of Denmark today stands in the front rank of bacon producers, and it is safe to state that this position of affairs has been brought about almost exclusively by organisation. Co-operative pork packing establishments are now in existence all through that country, and a very excellent work has also been done in the way of importing purebred boars from England for the use of breeders. In these co-operative companies only farmers are permitted to become stockholders and each individual is allowed only a limited amount of stock. These establishments are very loyally supported by Danish farmers who make an invariable practice of selling their hogs to the co-operative packing houses, sometimes even at an apparent sacrifice. It is of interest to note that this plan has been copied in Ontario. The Farmers' Pork Packing Company, Limited, of Brantford, Ont., is a very successful example of what can be done when farmers organise for co-operative purposes.

The following statement shows prices for live and dressed pork at Edmonton and Winnipeg during each month of the past four years.

MONTH	WINNIPEG							
	Live				Dressed			
	1899	1900	1901	1902	1899	1900	1901	1902
	per 100	per 100	per 100	per 100	per 100	per 100	per 100	per 100
January	\$4.75	\$4.75	\$5.12½	\$6.50	\$6.25	\$6.50	\$6.25	\$8.00
February	4.75	4.75	5.25	6.75	6.25	6.50	6.41½	8.00
March	4.75	5.00	5.37½	6.00	6.25	6.50	6.75	7.50
April	4.75	5.00	5.25	6.00	.....	.....	6.75	7.50
May	4.75	5.25	5.68¾	6.25	.....	.....	7.50	7.75
June	4.75	5.00	5.87½	6.50	.....	.....	8.25	8.00
July	4.75	5.00	6.00	6.25	.....	.....	8.25	7.75
August	4.75	5.00	6.37½	7.00	.....	.....	9.00	8.75
September	5.12½	5.25	6.68¾	7.00	.....	.....	9.41½	8.75
October	5.12½	5.50	6.87½	7.00	5.75	.....	9.00	8.75
November	4.75	5.25	6.25	6.75	5.75	6.50	8.62½	8.25
December	4.75	5.00	6.37½	6.25	5.75	6.50	7.37½	8.00

MONTH	EDMONTON							
	Live				Dressed			
	1899	1900	1901	1902	1899	1900	1901	1902
	per 100	per 100	per 100	per 100	per 100	per 100	per 100	per 100
January	\$4.25	.....	\$4.50	\$4.75	\$5.75	\$6.12½	\$5.75	\$5.75
February	4.25	.....	4.41½	4.50	5.75	6.12½	5.75	5.75
March	4.25	.....	4.62½	4.50	5.75	6.12½	5.75	5.75
April	4.25	5.12½	4.75	4.75	5.75	.....	5.75	5.75
May	4.25	5.12½	5.06½	4.75	5.75	.....	5.75	5.75
June	4.25	5.12½	5.00	4.75	5.75	.....	5.75	5.75
July	4.62½	5.12½	5.00	4.75	6.00	.....	5.75	5.75
August	5.25	5.12½	5.18	4.75	6.75	.....	5.75	5.75
September	5.25	5.12½	5.41½	5.25	6.75	.....	6.25	6.25
October	4.75	5.12½	5.41½	5.25	6.25	.....	6.25	6.25
November	4.75	.....	5.50	5.25	6.00	6.12½	6.25	6.25
December	4.50	.....	5.50	4.75	5.75	6.12½	5.50	5.75

The wheat blockade which prevailed in the grain growing districts of the Territories during the falls of 1901 and 1902 and the consequent heavy losses sustained by the farmers, who were forced to accept prices for their wheat several cents per bushel below the market value, and the fact that in some of the newly settled districts value for the grain marketed has to be taken out in trade, while in others the grain has to be hauled a considerable distance to market, have, like many other apparent evils, exerted some beneficial influences. No person who has had any experience in stock raising will assert for one moment that it pays to sell wheat for less than 65 cents per bushel when experience has demonstrated that, by selling the grain in the form of pork, 80 cents to \$1.10 per bushel can be realised with economical management, in addition to the enhanced value of the farm as a result of live stock feeding. It may be of interest to note that investigations by Professor Henry show that it takes from 300 to 500 lbs. of corn (which, by experiment, he proves has no better hog feeding value, pound for pound, than wheat and produces a much inferior quality of pork) to produce 100 lbs. of gain, or an average of 420 lbs. of wheat (7 bushels) for 100 lbs. of gain. The price of pork in the Territories has not been below \$4.25 per hundred during the past four years. Wheat converted into pork at \$4.25 per hundred would realise 60 cents per bushel, at \$5.00 per hundred 71 cents per bushel, at \$6.00, 86 cents and at \$7.00, \$1.00 per bushel. With the addition of alfalfa, rape or tares pasture in summer and roots in winter, the number of pounds of grain required to produce 100 lbs. of pork can be greatly reduced.

Experiments conducted at the Ohio Agricultural Experimental Station show wheat to be an excellent feed for economical pork production. In these investigations the daily gain per pig fed wheat was 1.39 lbs., while those fed corn only increased 1.29 lbs. in weight. A mixture of the two grains has the same results as wheat fed alone. A bushel of wheat produced 13.70 lbs. of pork, while a bushel of corn only produced 12.30 lbs. The hogs ate more wheat per day than corn, so that wheat was shown to be a more valuable feed than corn, even allowing the gain per bushel to be the same and not taking into consideration the much higher quality of wheat fed pork.

The most economical method of preparing wheat for swine feeding, according to investigations carried on at the Dominion Experimental

Farms, is grinding the grain and soaking it for twenty-four hours, or longer. Professor Grisdale states in his Bulletin on Pork Production, that, although no definite conclusions have been reached, it is highly probable that the extra returns from ground grain will more than pay for the cost of grinding.

To dairy farmers the experiments conducted at the Dominion Central Experimental Farm to determine the value of skim-milk in a ration for hogs will be of special interest. The results show that it takes 4.27 lbs. of a mixture of barley, rye and frozen wheat to produce one pound of gain, but when swine were fed half the quantity of this meal mixture and all the skim-milk they could consume, only 1.26 lbs. of meal and 25.39 lbs. of skim-milk were required for one pound of gain. With three quarters the quantity of this meal it took 2.17 lbs. and 11.10 lbs. of skim-milk to produce one pound increase in weight. These experiments show that 8.82 lbs. of skim-milk are equal to one pound of barley, rye and frozen wheat meal mixed in equal proportions. Investigations with corn indicate that 1.83 lbs. of skim-milk is equivalent to one pound of corn. The conclusions regarding these experiments are that skim-milk gives the best returns when it constitutes a comparatively small part of the total food fed, and that it is worth from one-fifth to one-sixth as much per pound as mixed grain.

Much has been said about the expense of labour in feeding hogs, but, considering the distance that wheat is usually hauled to market in the Territories, it is open to doubt whether any great difference exists between the cost of feeding it to hogs and the cost of marketing it. Certainly, under any rational system of managing hogs in fairly large herds the difference should be insignificant. The common practice of placing a hog in a small enclosure and stuffing it with grain not only produces soft pork containing a large portion of fat, but increases the cost of feeding and management very materially. Economics in live stock feeding must be constantly kept in view in order to secure the largest returns on the capital invested. Experience has amply demonstrated to progressive feeders that hogs, as well as other live stock, require a liberal supply of succulent food and plenty of exercise. A suitable enclosure of several acres in extent, surrounded by a hog proof wire fence and partly seeded down with nutritious forage plants, should be provided for the hogs during summer. For this purpose brome grass, barley, wheat, tares, Essex rape, peas and other forage plants are being used extensively. The swine are thus enabled to gather the bulk of their feed at the smallest possible outlay for labour. These enclosures are furnished with a natural water supply, or with water barrels, filled once or twice a week only, and provided with a cheap and ingenious watering device inserted near the base, provided with a float, which admits only of a small quantity of water at the time, and thus prevents waste and evaporation.

The value of pasture and exercise in economical hog feeding was forcibly shown by the results of extensive experiments conducted in this connection by Mills at the Utah Experiment Station. These investigations elicited the fact that pigs confined in a yard and fed grass with a full grain ration made an average daily gain of 1.1 lbs., requiring 465 lbs. grain for 100 lbs. gain, while those in pasture, likewise receiving a full feed of grain, made a daily gain of 1.3 lbs., requiring 417 lbs. grain for 100 lbs. gain. There was a saving of 10 per cent. by feeding on

pasture over the cost of feeding in the yard where grass was supplied in addition to the grain. The experiments also show that when feeding three-fourths of a full grain allowance the pigs made a daily gain of 1.2 lbs., requiring only 377 lbs. of grain for 100 lbs. of gain. With still less grain the amount of gain was much reduced, but so also was the amount of feed required for 100 lbs. of gain. Pigs kept on pasture without any grain showed an average gain of .36 of a pound a day or 2½ lbs. a week—certainly a very satisfactory result. Pigs fed cut grass when confined in a pen and maintained on this feed alone, shrunk .26 of a pound daily, showing conclusively that soiling is not profitable in connection with hog feeding.

In order that succulent food may be on hand during the winter a liberal supply of mangolds or turnips, preferably the former, should be provided. It may be justly claimed that these roots contain a very small proportion of nutritive material, at the same time it may be mentioned that the farmer would be well repaid for the trouble and expense of supplying roots for winter feeding even if no food were supplied by their use. The chief object in feeding roots is not in the food supply obtained, but the beneficial effect exerted upon the digestive system of the hog facilitating the assimilation of other nutritious feeds.

To produce the highest grade of Wiltshire sides the packers require a long, deep, smooth pig, possessing a light head and shoulder and even back, not too broad, but well covered with firm flesh, not fat; at the same time he must not be a razor back. The sides from ham to back of shoulder must be long and deep, the underline straight and free from flabbiness, the ham smooth and tapering, with the greatest amount of flesh on the outside. The pig should be healthy, vigorous and a good feeder, weighing when ready for market from 175 to 200 lbs. It is generally conceded that Yorkshires produce the greatest proportion of pigs of this type, with the Tamworths next. The thick, fat, American, or lard breeds are not wanted by packers.

The Department has in the past given the farmer every possible assistance in obtaining information respecting the most profitable manner of feeding and managing hogs in the West, through the Institute system and otherwise.

In the spring of 1900 a shipment of 211 high grade and purebred hogs were imported from Ontario to Northern Alberta and sold at public auction at the principal points along the Calgary and Edmonton Railway. These sales were followed up by Institute meetings at which addresses were delivered on the hog industry.

It is satisfactory to note that there are now two pork packing establishments at Edmonton, two at Calgary and one just started at Innisfail. The efforts of the Department in fostering the industry in Alberta may be partly responsible for this development. These establishments are now carrying on an extensive export bacon business in the place of a heavy annual importation of pork, which was the rule two or three years ago. This is a very desirable state of affairs and the sooner it prevails in every other part of the Territories the better it will be for the country.

IMPROVEMENT OF SWINE.

Saskatchewan.—As most of the hogs used for breeding purposes are imported from Ontario by private individuals, and as the number of such stock at present in the country is quite insignificant, the difficulties in the way of the improvement of swine will readily assert themselves to anyone giving the matter any thought.

The average farmer only wishes to secure from one to three or four purebred or high grade hogs with which to form the nucleus of his operations as a breeder, and the expense in connection with such a small importation is frequently more than the cost of the animals. In addition to such unwarranted expense the hogs have in most cases to be purchased by the mail order system, the only advantages of which are in favour of the seller. As stated in last year's report, the Department secured the co-operation of the Canadian Pacific Railway Company, and Messrs. Osler, Hammond and Nanton, agents for the Qu'Appelle, Long Lake and Saskatchewan Land Corporation, in connection with an importation to hogs to be brought up and sold by public auction at points in Saskatchewan. The former agreed to grant free transportation for the shipment from Ontario to the West, and the latter made the Department a guarantee against loss up to \$500.00 to further the undertaking, while the Dominion Department of Agriculture assisted to purchase and gather the shipment in the East. Under these arrangements this Department brought a shipment of 75 high grade sows and 15 purebred boars west in April and sold them by competition at points in Saskatchewan and Assiniboia, as follows: Prince Albert on the 4th of April; Rosthern, April 5th; Saskatoon, April 10th; and Regina on the 14th of April. The shipment arrived on April the 2nd and Mr. Richardson, clerk in charge of the Agricultural Organisation Branch of this Department, proceeded to Prince Albert to represent the Department at the various sales, and I herewith attach his report.

Report of E. L. Richardson.

In accordance with instructions I left Regina on the third of April and proceeded north to superintend the sales of swine imported under the auspices of the Department. On arriving at Prince Albert I visited the stock yards and found that, with a bedding of straw, they would be very suitable for the sale. I had handbills printed and distributed to supplement the efforts made at headquarters to ensure a good attendance at the sales. I then had the shipment divided as equally as possible to prevent culling during the sale. Mr. A. Shepphard, who accompanied me from Regina, acted as auctioneer at Prince Albert and Rosthern.

The shipment consisted of 75 sows and 15 boars principally of the Yorkshire and Berkshire breeds, although there were two or three high grade Tamworth sows included. The sows were all bred during February and the first week in March to purebred registered boars. Mr. H. Stuart was sent in charge of the car from Ontario and brought the stock through in excellent condition, only losing one *en route*. The animals were a good even lot of the bacon type and of at least as high quality as those procured the previous spring for Northern Alberta. The boars were all registered, and while the sows were sold as high grade, Mr. Stuart identified some of them as being eligible for registration and furnished the names of the breeders to the purchasers.

The general arrangements in connection with the sales were practically the same as those of last year. In order to prevent "culling" the hogs to be sold at each point were carefully selected previous to the sale, so that the hogs offered at the last sale were equal in quality to those sold at the first. No attempt was made to force sales. If the upset price was not offered the animal was returned to the car. The terms of the sale were fully explained by the auctioneer. These were briefly: Animals to be sold for cash only. Not more than one boar and two sows to be sold to any one person. Each purchaser to sign an undertaking not to sell or otherwise dispose of the animal or remove it from the Territories within two years without first obtaining the permission of the Commissioner of Agriculture. Each animal was furnished with an ear tag the number of which corresponded with the number on the shipping lists which showed the weight and cost of each together, in the case of sows, with the date of service. Buyers were duly advised that, while the animals had all been bred and were supposed to be in pig, the Department could not guarantee any particular animal to be in pig.

The Prince Albert sale was fairly well attended, the officers of the local agricultural societies taking a lively interest in the undertaking and rendering all the assistance in their power towards its success. The bidding was slow at first, but improved as the sale progressed. Twenty-three were disposed of at this point. As there were no stock yards at Rosthern I made a corral on the loading platform in which to hold the sale. I started the sale at eleven o'clock. Mr. Shepphard acted as auctioneer, but as the buyers understood very little English I obtained the services of Mr. H. Weiler, of Rosthern, to assist him. Although the day was rough and windy there was a fair attendance. A peculiarity of this sale was that only one bid was received on any animal that was offered. The bidding was very slow and, after putting up twenty-five or thirty animals and making only ten or twelve sales, I abandoned the auction system and sold privately at the upset prices. A number were sold in this way making a total of twenty-eight disposed of at Rosthern.

Fat pigs, particularly of the Berkshire breed, were in great demand and, after the Prince Albert and Rosthern sales had been held, many of the best breeding sows were still unsold and the shipment was by no means culled as far as utility was concerned. From Rosthern I communicated with the Secretary of the Central Saskatchewan Agricultural Society in order to arrange an additional sale where fifteen were sold, and at Regina I sold the balance of the shipment, twenty, at the upset price, as well as the car fittings.

The following statement shows the details in connection with the sale of swine at each point.

DEPARTMENT OF AGRICULTURE

STATEMENT of Swine Sales.--April, 1902.

Receipts.

Date of Sale.	Place of Sale.	Number Sold.						Total	Average Price.	Amount Realised.	Number of Individual Purchasers
		Yorks.		Berks.		Tams.					
		Sows	Boars	Sows	Boars	Sows	Boars				
Apl. 4...	Prince Albert..	17		2	3	1		23	\$17.34	\$398.90	19
" 5...	Rosthern	17	5	5	1			28	16.48	461.60	20
" 11...	Saskatoon.....	13	2					15	16.55	248.25	14
" 14..	Regina	17	2			1		20	14.76	295.25	11
		64	9	7	4	2		86	\$16.32	\$1404.00	64
Died.								4			
								90			

E. L. Richardson.

Under the same arrangements by which the above mentioned shipment was brought up the Department made a further importation from Ontario of 72 sows and 23 boars, all of pure breeding, accompanied by entry forms duly filled in by the breeders and ready for registration. The sows of previous importations were in pig and due to farrow in a month or six weeks, but it was found rather unsatisfactory to bring sows up that were so advanced in pregnancy, owing to the increased car space required and the danger of injury and abortion, and it was, therefore, decided that further shipments should consist of young sows that would produce litters in the early spring. Consequently the hogs in this shipment were from four to seven months of age. The shipment consisted of Yorkshires, Berkshires and Tamworths, the smaller proportion being Tamworths. The car arrived at Regina on October the 17th and sales were held at the following points:—Regina, October 18th; Saskatoon, October 21st; Rosthern, October 23rd; and Prince Albert, October 25th. Mr. Willing, Chief Weed Inspector, was placed in charge of this series of sales and represented the Department at the various points. I attach herewith a statement showing the receipts and other details in connection with the shipment.

STATEMENT of Swine Sales—Prince Albert Branch. (Second Series).

Receipts.

Date of Sale	Place of Sale	Number Sold							Average Price	Amount Realised	No. of individual purchasers
		Berks.		Yorks.		Tams.		Total			
		Sows	Boars	Sows	Boars	Sows	Boars				
Oct. 18	Regina	9	2	7	3	...	...	21	\$18.29	\$384.00	15
" 21	Saskatoon	4	...	2	...	1	...	7	15.22	106.50	6
" 23	Rosthern	2	...	4	3	2	...	11	16.97	186.85	9
" 25	Prince Albert ..	27	6	10	3	3	...	49	15.11	740.50	16
		42	8	23	9	6	...	88	\$16.11	\$1,417.85	46
	Died	1	1	...	...	...	...	2			
								90			

Assiniboia and Southern Alberta.—The Department had from time to time received representations from the various agricultural societies, as well as private individuals, asking that sales of purebred swine be held at the principal points on the main line of the Canadian Pacific Railway between Moosomin and Medicine Hat and between the latter point and Pincher Creek on the Crow's Nest line. As the time seemed to be quite ripe, and the limited number of hogs in those portions of the Territories rendered such an undertaking advisable, correspondence was immediately opened up between this Department and the Canadian Pacific Railway authorities with a view to securing free transportation on a shipment of hogs from Ontario to the West; and with Mr. F. W. Hodson, Dominion Live Stock Commissioner, regarding the purchase of the stock. The result was that the railway authorities at once agreed to grant free transportation on two cars of hogs from North Bay to Moosomin and a half rate from the latter point to Pincher Creek, and Mr. Hodson agreed to purchase the hogs free of charge. The following memorandum, advertising the sales and giving information as to how they would be conducted was then issued:

Arrangements have recently been completed between the Territorial Department of Agriculture and the Canadian Pacific Railway Company and land corporations interested in the development of the Territories whereby a large importation of purebred swine of the bacon breeds will be made. The Canadian Pacific Railway Company has granted free transportation for this shipment from Ontario to the West, the Dominion Live Stock Commissioner has agreed to co-operate to the extent of selecting and gathering the animals free of charge, and the Qu'Appelle, Long Lake and Saskatchewan Land Company is giving financial aid towards the undertaking.

When outlining the scheme for the improvement of cattle in the Territories the Department made it its sole aim to facilitate, through reduced cost and convenience of transportation, the importation of superior bulls only, knowing that female stock of fair quality was already in the country. The encouragement of swine breeding must, however, be along somewhat different lines. In the first place, the notorious lack of quality in the average brood sow calls for an increased number of purebred boars of high individual merit and, secondly, the wholly insufficient number of sows now in the hands of farmers in the Territories must be augmented by the importation and distribution of well-bred, selected, young females. It has now been decided to procure from leading breeders of Ontario several carloads of *purebred sows, eligible for registration*, of the Yorkshire and Berkshire breeds old enough to produce litters next spring, have them brought west in October and offered for sale at public auction to the highest bidder at the following places and undermentioned dates:

Moosomin.....	Saturday, October 18th.
Whitewood.....	Monday, " 20th.
Grenfell.....	Tuesday, " 21st.
Wolseley.....	Wednesday, " 22nd.
Qu'Appelle.....	Thursday, " 23rd.
Moose Jaw.....	Friday, " 24th.
Maple Creek.....	Monday, " 27th.
Medicine Hat.....	Tuesday, " 28th.
Lethbridge.....	Thursday, " 30th.
Macleod.....	Saturday, Nov. 1st.
Pincher Creek.....	Monday, " 3rd.

All sales commence at 1 p.m. sharp.

As stated above, all animals offered will be purebred and accompanied by breeder's certificate and can be registered upon payment of a fee of fifty cents per head. Only a strictly limited number of swine previously selected will be put up for sale at each point and every effort will be made to divide them in such a manner that the last lot disposed of will be of equally as high quality as the first. A low upset price will be placed on each individual head, representing its cost price in Ontario, with a small amount for expenses added, below which positively no sale will be made. Each purchaser will be required to sign a simple form of agreement not to slaughter or sell any swine purchased within two years.

It may be here stated that the Department, by purchasing early and in a wholesale way, has been able to procure these purebred animals at a cost only slightly exceeding their value as pork and it is expected that they can be offered at the sales at an upset price ranging from about \$10 per head and upwards, according to age and size.

I am now directed by the Commissioner to invite your co-operation in making these sales a success by bringing them to the attention of likely buyers. Any further information required may be obtained upon application to the undersigned.

The shipment arrived at Moosomin on October the 15th and Mr. E. L. Richardson, of this Department, proceeded to Moosomin and took entire charge of the several sales. His report, which I attach herewith, gives full information regarding the disposal of the animals.

Report of E. L. Richardson.

Having received instructions from you to superintend auction sales of swine under the auspices of the Department in Assiniboia and Southern Alberta I proceeded to Moosomin and, after sorting the shipment, placing an equal number of each breed in each of the two cars and keeping the quality as even as possible, the cars were billed to alternate sale points in order that a sale could be held every day, with one or two exceptions, until the Medicine Hat sale, where the shipment was consolidated. The shipment consisted of 212 hogs from five to seven months of age, made up as follows: 90 Yorkshire sows, 20 Yorkshire boars; 72 Berkshire sows, 18 Berkshire boars and 12 Tamworth sows. They were all purebred and accompanied by entry forms for registration. The shipment came through in excellent condition. The Berkshires were a very even lot of good quality and the Tamworths were good representatives of the breed; the Yorkshires, however, were scarcely of as good quality as those previously imported by the Department from Ontario. H. Stuart and S. Jarvis, the men sent from the east in charge of the shipment, took a great interest in their work and also rendered every possible assistance during the sales.

The general arrangements governing these sales were practically the same as those in vogue at sales held previously. A limited number, which had been previously selected, were put up for auction at each point, the terms were cash, and an upset price, being the actual cost in Ontario with a small amount added to assist in paying for the feed and attendance *en route*, was placed on each animal, below which no sale was to be made.

As has been the case at nearly every swine sale held under the auspices of the Department, the greatest preference was evidenced for Berkshires. This preference was more noticeable in districts where little or no attention had previously been given to the raising of hogs. At Moosomin and Qu'Appelle where the industry, although still in its infancy, has been in operation for some years, Yorkshires were in good demand, while at Macleod and Maple Creek it was difficult to dispose of hogs of that breed. Many of the people attending the sales had never seen a Tamworth, but no difficulty was experienced in disposing of the twelve that were in the shipment. Higher prices would, however, have been realised on the pigs of this breed if there had been any purebred and registered Tamworth boars in the country, in the absence of which the certificates of breeding furnished with the sows were practically valueless to the purchasers.

The success of the sales was in a large measure due to the excellent services rendered by S. W. Paisley, the well known live stock auctioneer of Lacombe, Alberta, who handled the sales all the way through. In addition to his duties as auctioneer he gave me every possible assistance before and after each of the sales.

The largest number of pigs were disposed of at Moosomin, Lethbridge and Pincher Creek, while the highest prices were realised at Whitewood and Qu'Appelle. I found the officers of the various agricultural societies ready to render me all the assistance that was in their power. I would also particularly call your attention to the interest taken in these sales by Dr. J. P. Creamer, Qu'Appelle; M. Annable, M.L.A., Moose Jaw; and E. A. Cunningham, Manager of the Alberta Railway and Coal Company's stores at Lethbridge, who spared no efforts in making the sale at their respective points a success.

There was a marked demand for boars at the several sales. I could have sold one and sometimes two or three more at each point but it was, of course, impossible to foretell the requirements of a large number of sales.

STATEMENT of Swine Sales Assiniboia and Alberta.—1902.
Receipts.

Date of Sale	Place of Sale.	Number Sold.					Total	Average Price.	Amount Realised	No. of Individual Purchasers
		Yorks.		Berks.		Tams				
		Sows	Boars	Sows	Boars	Sows				
Oct. 18	Moosomin	10	3	8	3	5	29	\$18.78	\$544.75	22
" 20	Whitewood	1	1	3	2	1	8	22.34	178.75	7
" 21	Grenfell	4	..	3	1	2	10	16.37	163.75	9
" 22	Wolseley	5	2	5	1	3	16	17.90	286.50	13
" 23	Qu'Appelle	10	3	7	1	..	21	20.71	435.00	16
" 24	Moose Jaw.	7	3	7	2	..	19	19.30	367.00	12
" 27	Maple Creek	5	1	6	1	..	13	16.11	209.50	11
" 28	Medicine Hat . . .	6	1	6	1	1	15	16.81	252.50	6
" 30	Lethbridge	17	3	11	1	..	32	17.76	568.50	14
Nov. 1	Macleod	4	1	6	1	..	12	18.10	217.25	9
" 3	Pincher Creek . .	18	1	8	2	..	29	15.11	438.50	16
	Died	87	19	70	16	12	204	\$17.98	\$3662.00	135
		2		4	2		8			
							212			

The Territories.—The following statement, giving the total importations of swine by this Department during the last three years, will convey some idea of the extent of the Department's operations in the way of the improvement of the swine stock of the country :

GOVERNMENT Swine Importations.

Year	Month	District.	No. of Sales.	No. in Shipment.						Total	Average Sale Price	No. of Individual Purchasers
				Yorks.		Berks.		Tams.				
				Sows	Boars	Sows	Boars	Sows	Boars			
1900	May	Northern Alberta.	8	61	11	88	11	34	4	209	\$16.25	148
1902	Apr.	Saskatchewan.....	4	64	9	7	4	2	.	86	16.32	64
1902	Oct.	Saskatchewan.....	4	23	14	42	8	6	.	93	16.11	48
1902	Oct.	Assiniboia & South- ern Alberta	11	87	19	70	16	12	..	204	17.98	135
			27	235	53	207	39	54	4	592	\$66.66	395

If the females of the increase from these sows were retained for breeding purposes, which, of course, was the aim of the Department, and, calculating on a basis of six pigs to a litter from the 496 sows distributed, the increase produced from the importations made under the auspices of the Department would mount into the millions in a few years. This fact is mentioned merely to give an idea of the quick results which may be looked for through the introduction of female stock of this class.

BRANDS.

The following statement shows the transactions of this branch of the Department up to the end of the past year.

Transfers	1899	132	
	1900	165	
	1901	222	
	1902	265	
Changes	1899	—	
	1900	27	
	1901	20	
	1902	26	
Searches and extracts	1899	—	
	1900	35	
	1901	42	
	1902	100	
Total number of brands reallocated		3,228	
Cattle brands	1898	2,111	
	1899	1,466	
	1900	1,508	
	1901	1,689	
	1902	1,934—8,708	
Horse brands	1898	941	
	1899	821	
	1900	886	
	1901	947	
Total brands on record up to 31st December, 1902		16,765	

Total transactions in 1898.....	6,280
“ “ 1899.....	2,419
“ “ 1900.....	2,621
“ “ 1901.....	2,920
“ “ 1902.....	3,559—17,709.

The number of brands allotted this year shows a very marked advance over previous years. As will be seen from the foregoing statement the average increase in former years has been about two hundred; this year it has reached over six. The greater number of applications have been received from the district lying north of Calgary. There has, however, been no decrease in other localities. In consequence of the large number of applications received, and the fact that the resources of the Department were severely tried to provide a sufficient number of simple designs to satisfy all applicants, it was found advisable to exercise less discrimination than usual where conflicting brands were to be used in portions of the Territories remote from each other. This course seems to have led to no dissatisfaction and has disposed of a great many brands which would not otherwise have been utilised.

In 1900 the total number of brands was 10,961, an increase of 2,394 over the previous year. This was considered most satisfactory, as for the first time some estimate could be made for future contingencies. The brand system was now open for criticism. In practice it was found to be, if not quite perfect, at least as good as any other system of registration.

It is now five years since the Department undertook the record and allotment of the Territorial brands. It was quite natural to expect that there would be some adverse criticism when an entirely new system was devised and put into operation, yet, taking everything into consideration, the efforts of this Department seem to have received general approval. As there are so many brands on the books it is a question of importance whether it would not be advisable in the near future to make a thorough revision of the records, cancelling all brands which are not in actual use.

Some seventeen thousand brands now stand on the records of the Department. In view of the large number of brands owned by professional and business men whose ownership of and dealings in live stock are generally of a very spasmodic nature, and, making a conservative allowance for cases where brand owners have left the country or have died, it is well within the mark to state that at least fifteen per cent. of the present recorded brands are not in use. It should be distinctly understood that as long as any brand remains on the records it is a source of actual expense. Every time a search is made in connection with a new application this brand must be considered; in every new issue of the official brand book it has to be reproduced with name and address of owner and full particulars as to position on animal, etc. Another objection to issuing a brand in perpetuity is the fact that, through burdening the system with unused brands, the Department is frequently compelled to refuse applications for simple designs on the part of *bona fide* stock owners on account of conflict with such unused designs. A complete revision and reallocation of all brands would no doubt entail considerable labour and expense, but would have the very beneficial effect of throwing open a great many designs for redistribution.

In September last, acting under your instructions, I proceeded to Helena, Mont., in order to make a careful examination of the brand records kept under the supervision of the Montana Stock Commission, in the hope of obtaining information that would prove of assistance to the branch of this Department entrusted with the administration of The Brand Ordinance. Mr. Pruitt, the Recorder of Brands, was kindness itself and lent every assistance to facilitate my enquiries. Without making any invidious comparisons, or reflecting in any way upon the brand administration of that State, enquiry into the system pursued there convinced me that the Territorial system was much in advance of that adopted there. The records in that State are about in the same condition as those of the Territories prior to the Department assuming control in 1897. The same undesirable number of single character brands and cases where the same design had been allotted for the same position to more than one individual, form part of the Montana system, as characterised the old Territorial records; in fact, it is difficult to see on what foundation the oft repeated desire on the part of some stockmen rests that the Territorial brand records should be modelled on the Montana system. In conversation with Mr. Pruitt I was informed that all these difficulties were due to the faulty management of the Montana records in early days, and also that it was now under consideration to follow the Territorial plan and cancel all existing brands, realloting those only that were in actual use. No official brand book has ever been issued in Montana and consequently great uncertainty doubtless exists on the part of the owners as to the exact design and position of their brands.

In North Dakota a system of brand allotments by counties is at present in vogue, but the stockmen of that State are very much dissatisfied with the present state of affairs and are pressing for a change.

In South Dakota a brand commission has been at work during the past year trying to compile an accurate list for that State and to initiate some sort of a systematic allotment. From what I can gather their records appear to be in a state of chaos. Up to lately they were reported to have passed some 4,300 brands, but there were then still supposed to be some which had not been registered.

After disputed cases had been settled and a practical system of brand recording introduced and was working smoothly, we found ourselves at the end of the year 1899 with 8,567 brands on our books. This, in comparison with what appeared to have been done in any previous year, was an alarming state of affairs. It was obvious that a new device, which would conform with the provisions of the Ordinance, would very soon have to be introduced. With this end in view a careful study of the situation was made and a series of brands consisting of one figure and a sign (a bar, half diamond or quarter circle above or below the brand) selected. This appeared to meet with general approval and has been in use ever since.

In 1901 the brands numbered 13,597. On the 31st December last there were 16,765,—3,168 having been recorded last year. The cattle brands allotted last year number 1,934, an increase over the previous year of 345, and 426 over 1900. The horse brands allotted last year number 1,234, an increase over the previous year of 287, and 348 over 1900.

The transfers recorded last year number 265,—43 over the previous

year and 100 over 1900. These transactions show a steady increase and the time will doubtless come when this feature of our brand work will develop very materially, as has been the experience elsewhere with extensive systems of stock marks.

CHEMICAL BRANDING.

The Department has paid some attention to the subject of chemical branding of stock, chiefly for the benefit of small stock owners who have no opportunities to become expert with the branding iron and would welcome any simple method of marking animals that did not involve the hot iron process, and reference has been made, in previous reports, to certain tests undertaken by the Department with a branding fluid manufactured by The Aberdeen Chemical Company, of Aberdeen, South Dakota, U.S.A. No conclusive evidence as to the feasibility or otherwise of marking stock by this method is as yet available. During the year experiments were conducted with this branding fluid by the following gentlemen: Messrs. T. V. Simpson, V.S., Yorkton, Assiniboia; John A. Turner, Calgary, Alberta; F. W. Godsall, Pincher Creek, Alberta; Alexander Shaw, of Little Plume Rancho, Woolchester, Assiniboia; Leslie M. Plewes, Moosomin, Assiniboia; and W. H. Minhinnick, Kinbera, Assiniboia. The important point involved is whether the fluid destroys the hair permanently. This information cannot, of course, be ascertained until a sufficient time has elapsed after the branding has been done to admit of the skin healing and a new growth of hair appearing if the hair has not been destroyed.

A great deal of interesting correspondence has been received on the subject of chemical branding but the practical utility of the process has not, as above stated, as yet been satisfactorily demonstrated. While on this subject the following extract (although it does not refer to chemical branding) from The Australasian Pastoralists' Review under date of February 15, 1901, may be of interest:

R. J. P. Gunnedah, New South Wales.—The plant of the steam branding machine, to which you refer, consists of a five-gallon portable boiler, capped with a copper chamber for the super-heated steam, the firing being carried out by means of a four-burner Primus stove, the whole weighing about 1½cwt. With a head of 23 lbs. of steam, the branding apparatus, which resembles a bicycle foot pump, can be put in operation. The branding iron, fitted with copper characters of any required design, is a cylinder connected with a boiler by a flexible tube, and the action of 15 lbs. pressure upon the head releases a spring valve, which at once ejects steam sufficient to scald the hide permanently, removing the hair, and leaving a legible brand, without in any way injuring the hide.

MARKING OF PUREBRED STOCK.

Where purebred stock is maintained the identification of individual animals becomes a necessity. The large number of new men now entering the industry of pedigreed stock breeding in the Territories makes the subject a timely one. A system of some sort is demanded where animals are run in large numbers and when owners are dependent

upon herdsmen for the identification of their breeding stock. The man who keeps only a few which are constantly under his observation has less pressing need of such markings, but a system of identification adds to the accuracy of his pedigree records.

Methods of marking live stock for purposes of identification may be enumerated as follows: Branding hair and skin with hot iron; branding with chemicals; branding horns; branding hoofs; notching or perforating ears; inserting metal tags in ears; tattooing numbers in ears with India ink, and slitting the skin of the brisket.

The chief objections to fire branding are that it reduces the value of the hide when it comes to be marketed, the cruelty of the operation and the unsightly effect of marking stock in this manner. In order to overcome these objections as far as possible the Ordinance now provides for the allotment of neck and jaw brands for cattle of the owner's selection. Simple designs are usually applied for in these positions that do not materially injure the appearance of high class stock if carefully put on with a small iron.

From New Zealand, a couple of years ago, came a formula for a chemical branding compound which was represented as a success. This has been reported upon above.

The horn brand has been much used on animals. It is clear and will last for a number of years if well burned in. If the horn happens to be knocked off, of course, the number will be lost, but yet the fact that one horn is gone might serve for identification. Cases might arise in which the record would be completely lost in this way, however.

Hoof branding has been much practiced with imported polled breeds of cattle, and with horses. This brand is clear and definite and is good as long as it lasts—which will be until a new hoof grows. In general this means of identification should endure for at least a year as a minimum.

Systems of marking by means of ear-notching have been perfected and are in considerable use, especially by breeders of swine and some of the hornless varieties of cattle. The chief objection to this system is its disfigurement. By working combinations of notches on both ears this system will answer all practical purposes. The use of numbered metal tags, or buttons, in the ears is quite general and many breeders believe it the best system yet devised. These buttons and tags will at times be torn out and unless properly inserted may occasion festering of the ear. Comparatively few breeders care to slit the briskets of their cattle for the purposes of identification. Although that method may be made reasonably effective as against another man's cattle it would not answer the needs of a man who desires to identify each of his calves.

The ear tattoo is coming more and more into favour. This plan is much liked by breeders of sheep and it certainly is easy and effective. The chief objection to it lies in the fact that the animal generally must be caught and held in order to decipher the numbers outlined by the tattoo needles and the ink, hence this method is not practical in herds where identification at a distance is required. But this objection applies in some degree at least to the use of the metal ear tags. The tattoo affords a permanent work and it is readily applied to all light skinned animals, but difficulty would be encountered in its use with black cattle and black swine. Where the skin is light, and the tattoo marks are readily decipherable, it is the most indestructible form of identification

that has yet been devised. Arrangements are being made for conducting experiments with this method of marking stock during the coming season.

PUBLICATION OF BRAND BOOK.

In 1898, when the brand records were handed over to this Department, there were about 5,000 brands in existence. Of this amount 3,228 were reallocated, the remainder being cancelled, in some cases owing to conflicting brands having been previously registered, but principally on account of failure on the part of owners to file applications for reallocation owing to removal, death and other causes. In the great majority of cases it was found that stockmen were branding with designs to which they had absolutely no legal right, or were using brands in positions on the animal which had not been recorded. This necessarily occasioned a vast deal of correspondence and considerable discontent on the part of disappointed applicants. It may here be mentioned that this chaotic state of affairs was in a great measure directly due to the fact that no official list of brands had ever been published, and, in refusing the reallocation of brands which were found not to coincide with the old records, the Department was frequently met with the statement that the brand used corresponded with that contained in Henderson's Brand Book, or other unofficial and incomplete publications issued principally for advertising purposes.

I am firmly convinced of the fact that it is absolutely necessary to issue periodically a revised list of brands to be placed on sale at a reasonable figure and copies thereof put in the hands of public officials throughout the country for convenient reference on the part of those that own or are interested in brands. Although a certificate setting forth the design and position of every brand allotted is invariably furnished, it is frequently found that the blacksmith making the branding irons does not adhere rigidly to the design, and probably that the owner is careless about the position on the animal for which he uses it, and by the time one or two transfers have been made and the certificates mislaid or lost, a change in position or some slight but important deviation from the recorded design frequently results.

During the year the manuscript of a revised edition of the first brand book, published two years ago, has been prepared. Each brand included therein has been carefully checked with the records in the Department and all necessary changes and additions made. This manuscript, which includes all brand transactions that have taken place prior to the 1st January, 1903, is now ready for the printers and I would strongly urge that no time be lost in getting the publication under way in order that a corrected brand book may be issued prior to the spring round-up and shipments.

ANIMALS RUNNING AT LARGE.

It has been evident since the Department was organised, and special attention has been devoted to the administration of the Ordinances

dealing with animals running at large, that very radical changes were required in the law. While it might not be practicable to consolidate The Pound District and The Herd Ordinances, I would strongly recommend that an attempt be made to deal with entire animals under a general Ordinance respecting stock running at large, outside of pound and herd districts. It is found that under the present law a great deal of confusion exists in the public mind as to the procedure required in taking up and disposing of estray and entire animals. This doubt on the part of the public as to whether an animal is to be dealt with under the Estray, Entire Animals or Herd Ordinances causes endless trouble in the Department as well as unnecessary delay and expense to the owners of estray animals. It is, therefore, very desirable that the law should be simplified as much as possible.

Representations have from time to time been received from the Western Stock Growers' Association, as well as from private individuals, urging the Department to deal with "mavericks," that is, unbranded, ownerless stock, running at large on the western ranges. These animals are annually increasing in numbers and are becoming a very serious nuisance, to say nothing of the demoralising effect exercised upon weak-minded men, probably otherwise quite honest and trustworthy, to whom the temptation of appropriating apparently ownerless stock is too strong to be resisted even with the knowledge that they commit an offence, unpardonable in a stock country, which renders them liable to a most severe penalty as well as social degradation. In fact, it may even be contended that to place temptation in the way of men who deliberately look for such opportunities as well as of those too weak-minded to resist is not altogether justifiable. I would strongly urge that provision be made for dealing legally with mavericks and thus dispose of a problem that has agitated the minds of ranchmen for a considerable time and has at times prompted them to adopt measures more conspicuous for expediency than legality.

Considerable trouble is also being caused by wild horses running at large in South-Western Assiniboia and in other districts. These horses are absolutely beyond control, and once a domesticated horse joins the band it becomes almost impossible to recover it. These bands are in the habit of running off mares belonging to neighbouring ranches and farms. It would also be well if some provision could be made whereby these horses can be rounded up and disposed of.

The periodical controversy in respect to the provisions of the herd law appeared in easterly Territorial newspapers during the year. The Ordinance ceases to apply on the 30th of October when animals may run at large and trespass without the owners being liable for damages. In the opinion of grain growers the time should be extended until the end of November. This proposition is, on the other hand, resented by those who divide their energies equally between grain and live stock. Possibly the solution of the difficulty would be to divide the country up into districts and fix dates for each district suitable to the conditions prevailing therein.

The usual statistical tables are herewith appended.

**STATISTICAL Statement showing Sales of Animals Illegally Running at Large
since the year 1886.**

Year.	Total Amount collected	(1) Revenue	(2) Refunds
1886—1896 Total for 10 years.....	\$ 79.85	\$ 79.85	.....
1896—1897.....	95.95	95.95	.....
1898—1899 (16 months Department organised).....	356.95	324.00	\$ 32.95
1900.....	1,137.15	588.83	548.32
1901.....	789.53	581.97	207.56
1902.....	516.18	499.38	31.30

(1) This column shows actual revenue from lapsed proceeds of sales deposited to the credit of the General Revenue Fund.

(2) This column shows the amounts of proceeds of sales paid to the rightful owners of stock disposed of under the Estray, Entire Animals and Herd Ordinances.

SALES of Animals Impounded under the Herd Ordinance.

Poundkeeper.	Location.	Class of Animal.	First Gazette Notice.	Date of Sale.	Net Proceeds
R. Beard	W $\frac{1}{2}$ 16-16-25 w. 2.	Red cow	May 30, 1902...	June 20, 1902.	\$14.00
Jos. Goodman.....	NE $\frac{1}{4}$ 14-16-32 w. 1	Gray mare	June 15, 1902.	July 11, 1902.	24.00
S. Beach.....	SW $\frac{1}{4}$ 34-16-20 w. 2	Bay mare	June 30, 1902.	Aug. 1, 1902.	52.00
W. H. Fynn.....	34-21-17 w. 2.	Bay mare	July 15, 1902..	Aug. 9, 1902..	51.00
Elias Cuming	SW $\frac{1}{4}$ 22-14-4 w. 2	Pony mare	July 15, 1902..	Aug. 29, 1902..	33.50
Wm. Dalgleish.....	SW $\frac{1}{4}$ 16-15-33 w. 1	Red and white yearling steer and heifer.	Sept. 30, 1902..	Oct. 11, 1902..	21.00
Percy R. Hewer.....	SW $\frac{1}{4}$ 30-22-22 w. 2	Roan pony mare, black sucking colt and piebald filly	Sept. 15, 1902.	Oct. 14, 1902..	56.00

SALES of Estray Entire Animals.

Justice.	Address	Class of Animal	Date of Capture	First Gazette Notice	Date of Sale.	Net Proceeds
Geo. F. Guernsey	Fort Qu'Appelle	Bay stallion	Mar. 17, 1902.	Nov. 30, 1901.	Jan. 3, 1902.	\$15.00
C. L. Peterson	Didsbury	Two year old bay stallion.	May 16, 1902.	Feb. 15, 1902.	Mar. 17, 1902.	40.00
E. J. W. Rayment.....	Saltcoats	Light roan stallion	June 16, 1902.	May 31, 1902.	June 3, 1902.	28.00
Chas. B. Phillips.....	Asker	Stallion	June 16, 1902.	June 30, 1902.	Aug. 16, 1902.	30.00
James Stewart	Prince Albert.	Gray stallion	June 16, 1902.	June 14, 1902.	Sept. 1, 1902.	33.00

SALES of Estray Animals.

Justice	Address	Class of Animal	Date of Capture	First Gazette Notice	Date of Sale	Net Proceeds
A. Urquhart	Yellow Grass	Pony gelding	June 1, 1901	June 29, 1901	Jan. 3, 1902	\$ 6.50
Ernest Miller	Qu'Appelle Station	Black pony gelding	April 15, 1901	July 31, 1901	Feb. 8, 1902	9.50
G. F. Guernsey	Fort Qu'Appelle	Yearling heifer	July 15, 1901	Aug. 15, 1901	Feb. 26, 1902	11.00
"	"	Three year old steer	"	Feb. 15, 1901	Feb. 1, 1902	22.50
S. M. Rogers	Innisfail	Bay gelding, 8 years old	Aug. 15, 1901	Aug. 15, 1901	Feb. 3, 1902	20.00
D. McLean	Star	Two cows and one steer	May 1, 1900	Oct., 1901	Feb. 8, 1902	53.75
E. F. T. Brokovski	Battleford	Dark red cow, and red and white calf	Nov., 1899	Feb. 15, 1901	Feb. 12, 1902	26.00
Chas. Millham	Hazelcliff	Three year old heifer	June, 1901	Sept. 14, 1901	Apr. 21, 1902	25.00
Peter Talbot	Lacombe	Black yearling steer	Aug. 1, 1900	May 14, 1901	Feb. 8, 1902	16.00
J. N. Silverthorn	Olds	Heifer	"	Nov., 1901	June 4, 1902	12.00
Geo. Bremner	DeWinton	Red steer	Nov. 1, 1901	Dec., 1901	July 2, 1902	32.00
E. J. W. Rayment	Saltcoats	Four year old steer	Oct. 9, 1901	Nov. 15, 1901	July 14, 1902	40.00
A. S. Rosenroll	Wetaskiwin	Four year old steer	Nov. 15, 1901	Dec. 31, 1901	July 26, 1902	22.00
Geo. F. Guernsey	Fort Qu'Appelle	Red and white cow and roan heifer	Dec. 27, 1901	Aug. 1, 1902	Aug. 1, 1902	33.00
L. Robertson	Whitewood	Black sow	Dec. 1, 1901	Dec. 31, 1901	July 31, 1902	15.00
E. A. Holmes	Star	Roan horse	"	"	"	15.50

THE HERD DISTRICT.

The herd district, as constituted on the 31st December last, includes the following areas :

Lying west of the First Meridian—

Range 30, townships 1, 2, 3, 4, 5, 6, 7, 10, 11, 15, 16 and sections 1 to 24 inclusive in township 17, the whole of townships 22 and 23.

Range 31, townships 1, 2, 3, 4, 5, 7, 10, 11, 12, 13, 14, 15, 16 and that portion of township 17 lying south and east of the Qu'Appelle River, the whole of townships 21, 22 and 23.

Range 32, townships 1, 2, 3, 11, 12, 13, 14, 15, 16 and sections 1 to 24 inclusive in township 17, the whole of township 21.

Range 33, east half of township 1, the four eastern rows of sections in township 2, the east half of township 3, the whole of townships 12, 13, 14, 15, 16 and sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24 in township 17.

Range 34, fractional townships 12 and 13.

Lying west of the Second Meridian—

Range 1, townships 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, and sections 5 and 6 in Township 17.

Range 2, townships 1, 2, 3, 4, 5, 6, 7, the whole of sections 1, 2, 3, 6, 7, 8, 10, 11, 12, 13, 14, 15, 18, 19, 20, 28, 29, 30 and 31 ; the east halves of sections 22, 23, 24, 25, 26, 35 and 36, and the west halves of sections 32, 33 and 34 in township 13, the whole of townships 14 and 15, sections 1, 2, 3, 4, 6, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 24, 25, 26, 27, 28, 35, 36, and east half of 20 in township 16 and sections 1 and 2 in township 17.

Range 3, townships 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15 and sections 1 and 12 in township 16.

Range 4, townships 1, 2, 3, 4, 12, 13, 14, 15.

Range 5, townships 1, 2, 3, 4, 7, 8, 13, 14, 15 and sections 1 to 24 inclusive in township 16.

Range 6, townships 1, 2, 3, 7, 8, 16.

Range 7, townships 2, 3, 15, 16, 17, 18, 19a, 19, 20.

Range 8, townships 2, 3, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23.

Range 9, townships 2, 12, 13, 14, 15, 16, 17, 18, 19a, 21, 22, 23.

Range 10, townships 12, 13, 14, 15, 16, 17, 18, 19a, 19, 20, 21 and fractional township 22.

Range 11, fractional township 15, the whole of township 20 and fractional township 21.

Range 12, townships 20 and 21.

Range 13, township 20.

Range 14, townships 8, 9, 16, 17, 18 and fractional township 14.

Range 15, townships 8 and 9.

Range 16, fractional township 21, the whole of township 22 and sections 1 and 25 inclusive in township 23.

Range 17, townships 15, 16, 17, 18, 19, fractional townships 20 and 21, the whole of township 22 and south half of township 23.

Range 18, townships 11, 12, 13, 14, 15, 16, 17, 18 and 19.

Range 19, townships 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 and sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16 in township 21.

Range 20, townships 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.

Range 21, townships 14, 15, 16, 17, 18, 19, 20, 23, 24.

Range 22, townships 14, 15, 16, 17, 18, 19, 20, 22, 23, 24.

Range 23, townships 15, 16, 17, 18, 19, 20 and those portions of townships 22 and 23 lying east of Long Lake.

Range 24, townships 15, 16, 17, 18.

Range 25, townships 15, 16, 17, 18, 19.

Lying west of the line between townships 25 and 26 west of the Second Meridian—

Range 26, townships 15, 16, 17, 18 and those portions of townships 19 and 20 lying west of Highpound Lake.

Range 27, townships 16, 17, 18 and that portion of township 20 lying west of the Qu'Appelle River.

Range 28, townships 17 and 18.

Range 29, township 18.

Lying west of the Third Meridian—

Range 1, that portion of section 18 township 24a lying north of the south branch of the Saskatchewan River, and those portions of sections 5, 6, 7, 8, 17, and 18 in township 42 lying west of the south branch of the Saskatchewan River.

Range 2, townships 40, 41, 42, 43a, 43.

Range 3, townships 33, 39, 40, 41, 42, 43a and fractional township 43.

Range 4, townships 30, 31, 32, 33, 35, 36, 37, 39, 40, 41, 42, 43 and 44.

Range 5, townships 30, 35, 36, 37, 39, 40, 41, 42 and those portions of townships 43 and 44 lying south and east of the Saskatchewan River.

Range 6, townships 36, 40, 41 and those portions of townships 42 and 43 lying east of the Saskatchewan River.

Range 7, those portions of townships 41 and 42 lying east of the Saskatchewan River.

POUND DISTRICTS.

The following areas have been set apart up to the end of the past year under The Pound District Ordinance, in addition to those formed under The Village Ordinance.

No. 1.—Sections 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33 and 34 in township 22 range 14 and sections 12, 13, 24, 25 and 36 in township 22 range 15, all west of the second meridian; poundkeeper, Alfred Bailey of Parklands, Fort Qu'Appelle, Assiniboia. Pound on north-west quarter of section 28, township 22, range 14 west of the second meridian.

No. 2.—Those portions of townships 37, 38 and 39 in ranges 26, 27 and 28 west of the fourth meridian lying south of the Red Deer River. This district was constituted in 1897 but no poundkeeper was apparently appointed.

No. 3.—Sections 15, 16, 17, 20, 21, 22, the south half of section 27, the south-east quarter of the north-east quarter of section 27 all in township 47 range 27 west of the second meridian: poundkeeper, Edwin Anderson of Kirkpatrick, Saskatchewan. Pound on the north-west quarter of section 27, township 47 range 27 west of the second meridian.

BULL DISTRICTS.

Set apart under Clause (2) of Section 4 of The Entire Animals Ordinance :

District No. 1.—All that portion of the Provisional District of Alberta lying south of townships 34.

District No. 2.—Townships 39, 40 and 41 in ranges 26 and 27 west of the fourth meridian.

District No. 3.—All that portion of the Provisional District of Assiniboia lying west of a line which may be described as follows : Commencing at the point where the international boundary is intersected by the line between ranges 15 and 16 west of the second meridian and following the said line northerly until its intersection with the line between townships 14 and 15 : thence westerly along said line to the third meridian ; thence northerly along the said third meridian to the northerly boundary of the said Provisional District of Assiniboia.

District No. 4.—All that part of the Provisional District of Saskatchewan lying west of range 11 west of the third meridian.

District No. 5.—Townships 48, 49, 50 and 51 in ranges 1, 2, 3, 4, 5, 6 and 7 west of the third meridian.

District No. 6.—Townships 51, 52 and 53 in range 17 west of the fourth meridian.

DESTRUCTION OF WOLVES.

The following statistical statement shows the number of wolves killed for which bounties were paid from 1899 to 1902 inclusive. The regulations quoted in the Report for 1900 are still in force :

Association		Dogs	Bitches	Pups	Total
Western Stock Growers'	1899	75	43	336	454
	1900	73	54	264	391
	1901	68	68	238	374
	1902	51	40	274	365
Willow Bunch Stock Growers' ...	1899	1	..	...	1
	1900	2	1	...	3
	1901	2	..	...	2
	1902	1	..	...	1
The Territories.	1899	76	43	336	455
	1900	75	55	264	394
	1901	70	68	238	376
	1902	52	40	274	366

III.—AGRICULTURAL EXPERIMENTS.

CO-OPERATIVE FIELD TRIALS.

Extended reference was made in last year's annual report to the advisability of establishing a system of co-operative experiments, or field trials, through the medium of agricultural societies. In order to ascertain the feeling of these societies the following circular letter was sent to all agricultural societies' secretaries to be read and discussed at the annual meetings held in December last:

It has been decided to inaugurate a system of co-operative agricultural experiments and demonstrations throughout the Territories and it has occurred to the Commissioner that agricultural societies could render valuable aid in this useful and interesting work. The Agricultural Co-operative Experimental Union of Ontario, an association devoted entirely to such work, has now been in existence for many years in that Province and has rendered services of untold value to farmers there. The Territories present so many variations in soil and climate that conclusions arrived at through investigations at one point, or even a limited number of points, could not safely be considered as of general application. A necessity therefore exists here more than in any of the Provinces for a scheme of experimental and demonstration work efficient enough to gain the confidence of farmers, which implies conducting it under ordinary farming conditions, and at the same time sufficiently widespread to take in every district of uniform climate and soil.

The details of the scheme have not as yet been finally decided upon, as the Commissioner first desires to consult the various agricultural societies. Briefly speaking, the proposal is to outline a series of ten or twelve simple experiments, such as illustrations of results in using different varieties of seed, the testing of systems of cultivation suitable to the local conditions or any other simple experiments that the various societies are in a position to suggest. The present intention is that the Department will procure the seed necessary and supply it free of charge. A committee of your directors would be elected to take charge of this work and they would arrange with one or two reliable farmers in the district, who take an interest in work of this nature, to carry out the experiments according to the printed instructions furnished by the Department, for which they would probably be entitled to reasonable remuneration. Each experiment would cover not less than from half an acre to an acre so as not to cause too much additional work. At the end of the season these experimenters would make their reports to the annual meeting of the society, and the secretary would afterwards transmit them to the Department. It would be the intention to give each society that takes up this work and furnishes the returns called for an additional money grant, so that societies would in no wise be called upon to spend any of their own funds on this work.

Would you be kind enough to bring this communication before your forthcoming annual meeting and to get an expression of opinion on the part of your members as to whether they consider the proposal feasible and practicable. The Commissioner would be glad to have suggestions as to any particular experiments which might with advantage be taken up in your locality. Are you satisfied with the varieties of grain now in the district? Are there any problems in the way of cultivation which you would like to have solved?

The Commissioner would suggest that you should appoint a committee of three of your directors with power to deal with this question before your annual meeting adjourns.

It is gratifying to know that the Department's proposal met with the hearty support of agricultural societies. Nearly all these societies have now formed committees to deal with the question and there is every reason to hope that this important work will make material progress during the coming year.

TRIALS OF FALL WHEAT.

I referred in last year's report to the advisability of encouraging the production of fall wheat in Alberta and, in the section devoted to "Transit and Markets," I have endeavoured to point out, under the heading "Market for Oats," that it cannot be satisfactorily shown that a permanent and remunerative market exists for this cereal and that farmers in Alberta will be confronted with the absolute necessity of largely substituting fall wheat, or some other marketable cereal, for oats which is now the standard crop of that district. It would, therefore, appear to be advisable to offer Alberta farmers every opportunity of investigating the merits and demerits of other cereals, for which a market exists, under the varying climatic and soil conditions of the various localities in this district.

Systematic efforts have already been made with a view to introducing some varieties of fall wheat. During the last year a considerable quantity of winter wheat was imported into the Territories from the State of Kansas by the Canadian Pacific Railway Company, and also by several grain dealers. The railway company distributed a considerable quantity of this seed amongst some 216 farmers at the following points: Calgary, Cochrane, Didsbury, Davisburg, Edmonton, Gleichen, High River, Innisfail, Lacombe, Leduc, Langdon, Macleod, Morley, Okotoks, Olds, Pincher Creek, Ponoka, Red Deer and Wetaskiwin. Returns showing results are not as yet available, but the experience in Southern Alberta, where winter wheat has been fairly extensively grown for some years, is very promising indeed. The variety grown in the Pincher Creek district, which is the birthplace of the fall wheat industry in the Territories, is principally Dawson's golden chaff.

A very important point in connection with the growing of wheat is the selection of the proper variety. There are three groups of wheats grown on the American continent, namely, the soft bread wheats, the hard bread wheats and the durum or macaroni wheats. The wheats produced in Assiniboia, Saskatchewan and Manitoba belong entirely to the hard varieties, of which red fife is the best known. Numerous attempts have been made to grow the hard spring wheats in the district of Alberta, and, while successful results are frequently obtained, it cannot be doubted that the somewhat humid climatic conditions do not readily lend themselves to the profitable production of this group of wheats. It is a well known fact that after the second or third generation of red fife produced in Northern Alberta the characteristics of the variety are usually more or less lost and very often a crop of soft wheat is harvested from imported red fife seed. This would appear to be an additional reason why an earnest effort should be made to discover and introduce varieties of wheat that are suited to the peculiarities of Alberta soils and climates.

If wheat is to be grown in Alberta at all it is quite clear that a wheat or flour outlet will have to be provided on the Pacific coast. Wheat growing in Alberta as a commercial enterprise with an overland haul to lake ports would be a failure. An enormous market is, however, gradually opening up in the Orient and the demand there at the present time is fortunately entirely for a cheap, white flour, such as is produced with soft varieties of winter wheat, that I feel certain will yield profusely in Alberta. Again, considering the fact that while the value of

the soft wheats is not as great as that of the hard wheats bushel for bushel, the yield per acre is very much larger and more than makes up for the lower price. It is calculated that soft wheat can be raised and sacked in the North Pacific States at 20 cents per bushel and, in view of the fact that the average farm price for 1900 in the State of Idaho was 46 cents per bushel (which was the lowest for twenty years), 50 cents in 1899, 51 cents in 1898, 70 cents in 1897 and 65 cents in 1896, there would appear to be a reasonable profit in the business.

While it is of great importance in selecting a variety of wheat that the choice should fall on a high yielder, it is still more important that the quality of such variety should be the best that can be produced under the climatic and soil conditions of the district for which it is intended. In other words, other things being equal, the final test in wheat is not how many *bushels* per acre, but how many pounds of *bread* per acre of good quality. The following extract from a schedule showing the results of investigations on this subject conducted at Guelph Agricultural College under the direction of Professors Zavitz and Harcourt are of special interest:

TABLE Showing Quality of Flour.

		WHEAT		FLOUR						
FALL WHEAT	Locality where grown	Weight per measured bus.	Proteids N. x 6.25 per cent.	Crude Gluten		Water absorp- tion per cent.	Yield of bread per 100 lbs. flour	Quality of bread 100 as standard		
				Wet per cent.	Dry per cent.					
Turkey red	Waterloo...	63.0	10.80	40.68	12.60	63.0	158.5	95		
" "	"	63.0	10.73	39.09	12.12	62.5	157.7	95		
" "	Kansas	62.5	10.80	40.60	12.33	62.5	156.8	95		
Michigan amber	Guelph	64.0	10.56	35.62	12.92	61.5	151.0	90		
" "	Clinton....	63.0	9.39	33.95	11.62	60.0	145.5	90		
" "	Newmarket..	61.0	9.45	32.32	10.93	60.0	146.5	88		
" "	Guelph	62.7	10.46	33.28	11.20	60.0	149.9	85		
" "	Chatham....	60.0	9.64	33.57	11.43	59.0	146.6	90		
Dawson's golden chaff	Guelph	60.0	9.30	28.51	9.55	57.0	140.4	80		
" "	Clinton....	60.7	9.24	28.95	10.64	57.0	139.4	85		
" "	Tavistock..	60.0	9.73	30.31	11.28	57.0	141.2	82		
" "	Guelph	60.0	8.74	28.66	10.85	57.0	141.1	75		
" "	St. Thomas	59.5	8.86	30.03	10.37	58.0	144.8	90		
" "	Guelph	60.0	8.64	28.27	10.58	56.5	139.7	80		
" "	Chatham....	59.5	9.79	30.24	10.55	58.0	144.5	80		
Fife	Bowmanville	61.0	11.92	43.35	13.98	60.0	154.2	100		
White russian	Bowmanville	60.0	10.27	36.60	12.38	58.0	146.5	85		
" "	Lindsay....	61.0	9.48	34.56	11.95	58.0	143.3	82		
" "	Beaverton..	61.0	9.21	31.30	11.13	59.0	147.0	82		

The above samples were ground during the latter part of November and December in a regular roller process mill by the same millers and under as uniform conditions as possible. No attempt was made to obtain large yields of flour, the wheat being ground fairly high to give all the strength possible to the flour, and less than two per cent. low grade flour was removed. The samples were practically ground to what is technically known as "straight." It will be noticed that the "Turkey red," which was imported from Kansas for the purposes of comparison,

gave the highest yield of bread for each 100 lbs. of flour. The average yields per acre for a period of five years, as shown by the co-operative Experimental Union field trials, of Dawson's golden chaff was 55 bushels, turkey red 40.3 bushels and Michigan amber 51.6 bushels. Reduced to their respective values in Oriental markets Dawson's golden chaff would be the most profitable, while for eastern export and home consumption, the Kansas turkey red would doubtless give the most satisfactory financial returns of any known variety of winter wheat.

I referred above to the fact that Dawson's golden chaff and Kansas turkey red wheats are the only varieties of fall wheat that have so far been tested in the Territories in any systematic manner. While the turkey red makes the strongest flour of these varieties, it has been shown that it would not command any higher price for Oriental export. During the year arrangements were made with Professor McLean of the State Agricultural College at Moscow, Idaho, to supply the Department with 20 bushels of palouse blue stem, 20 bushels of palouse red chaff and 30 bushels of little club wheats. Negotiations were opened with the Canadian Pacific Railway Company with a view to obtaining some assistance towards the project of introducing these varieties in the West, and that company cheerfully offered to contribute to the extent of giving free transportation for this seed over its lines. In all experiments much depends on having the grain properly put in and accurate records kept during the growing season. Experience has demonstrated that success cannot be looked for if the experiments are conducted on too small an area and I would, therefore, recommend that sufficient seed be sent to each experimenter to seed at least a full acre.

It is very probable that systematic experiments covering a number of years will prove that two distinct varieties of fall wheat will be required to answer the different climatic conditions of Northern and Southern Alberta. No grain is influenced as much by humidity in the air as wheat, and it is an interesting and well known fact that more rain falls in many parts of the arid West than in certain humid portions of Canada. The greater humidity in the air in the humid districts than in the drier portions is, however, responsible for the wheat being softer in Eastern Canada than in the West. It is, therefore, quite probable that the softer and higher yielding varieties of winter wheat will do best in Northern Alberta, and varieties such as Kansas turkey red will be required in Southern Alberta. The mean annual rainfall at Walla Walla, which is situated in the greatest wheat raising district of the Pacific states, is 14.52 inches, which is distinctly below the average of any portion of the North-West Territories for the last ten years.

Whether the growing of fall wheat is adapted at all to agricultural operations of a northerly latitude is another very important question. In the Pineher Creek district it is found that the best time for seeding is between the 24th of July and the 1st of August. In view of the fact that the fall wheat is not cut by that time it is evident that only one crop can be produced every two years. In the Pacific States the crop is cut very early, and immediately after it is taken off the straw is burnt and the land is reploughed, the grain being put in between September and October and cut during July and August of the following year. This system is not, of course, feasible north of the 49th degree of latitude and it would, therefore, appear that if the growing of fall wheat is ever to become a paying industry it will necessarily be as a part of a regular crop rotation, sowing the fall wheat on summer fallowed land.

I may here mention that most successful co-operative experiments are now being carried out in Great Britain by the National Association of British and Irish Millers with the specific object of improving home grown varieties of wheat for milling purposes. At a recent conference between the Association and the President of the Board of Agriculture the assistance of the latter was invoked. The following are the special points which the National Association brought before Mr. Hanbury :

That the Board of Agriculture be requested to co-operate with the Incorporated National Association of British and Irish Millers in their endeavours to improve the quality, without diminution of yield, of home grown wheat with a view to stimulate the demand for such grain, and consequently encourage an increase in the acreage under wheat.

That the Board of Agriculture would further this object by: (1) Appointing and maintaining a competent inspector to visit the various plots of land already under cultivation on the lines laid down by the association. (2) That the Board of Agriculture might use its influence with the various agricultural societies, colleges and such county councils as exist in grain growing counties, to carry on experiments with the object of improving the quality of home grown wheat. (3) That the Board supplement the sum already voted by the association (now almost exhausted) by a grant of money for the furtherance of the objects named.

Of course the idea of the British miller is that if he can get wheat of proper milling qualities grown at home he will have to import less and will be able to buy it cheaper than the imported article. This would place him in a better position to compete with American and other foreign millers. Whether they can raise wheat in Great Britain of the quality and character desired remains to be definitely proven. In any event, they will still have to import considerable wheat as they have not the area to devote to wheat culture to produce all the grain needed by the mills of the country.

TRIALS OF CORN.

So far as I am aware corn has not yet been successfully matured within the boundaries of the North-West Territories, and the fact is generally admitted that we are at present outside the life zone of this cereal, but, on the other hand, it is equally certain that the life zone of corn is extending northwards with rapid strides, and probably the day is not very far distant when a variety of corn will have been developed hardy enough to withstand our cool nights and an early enough ripener to escape autumn frosts. The Department realises that a mighty obstacle to the successful finishing of range cattle would be overcome if the production of corn within the Territories could be carried on upon a commercial basis. Corn is now produced for export in the State of North Dakota within a hundred miles of the Canadian boundary, and doubtless it will work northward in time. It would, however, appear that the northward progress of this grain might be materially hastened by a little assistance and negotiations were, therefore, entered into, under your directions, with the Great Northern Railway authorities in order to obtain a small quantity of corn grown in the extremest northerly latitude of North Dakota where corn is successfully produced, with the intention of having trials made of this seed in the farming districts of the Territories contiguous to the United States boundary line, principally the Souris, Lethbridge, Cardston and Pincher Creek districts. The following letter, received from the General Freight Agent of the Soo line at Minneapolis on the subject, is of particular interest :

A very considerable amount of corn is raised along our line in North Dakota. It seems to be pushing farther north every year.

When the Soo line was built there was very little corn raised in Minnesota, but now there are just as good fields every year between Minneapolis and the North Dakota boundary as you will see in Iowa and with it the increase in the production of hogs is very noticeable. Twelve years ago you could not buy a carload of hogs along the Soo line; now we have single stations that ship 25 carloads in one year.

There is a great deal of corn raised about Lidgerwood, N.D., which is in the southern part of the State, but they are increasing all along as far as Harvey and I have seen good looking corn fields in the Mouse River Bottoms south of Minot. They are also raising considerable millet of different varieties, and speltz, a species of barley, which makes good feed for cattle and hogs.

Arrangements have now been made under your direction to distribute samples of this hardy corn to those agricultural societies within the districts mentioned above that are prepared to take up co-operative field trials work as outlined herein. Special care will be taken to see that the instructions in respect to the seeding and harvesting of this corn will be as complete as possible and that they are properly carried out and the necessary returns furnished. It is hoped that out of the quantity of seed thus tested, isolated plants will ripen their ears and the seed from these when sown the following year will probably ripen a larger percentage of ears and, by thus following a system of natural selection, in the course of a few years a strain of corn may thus be developed and acclimated that will yield profitable crops under our strenuous climatic conditions. It is, of course, very probable that the present attempt will meet with total failure, in which event I would strongly urge that further seed be obtained from the same district of North Dakota and the experiment repeated until successful.

TRIALS OF FLAX.

A very considerable area was put into flax during the past year throughout the Territories and very divergent opinions exist as to the proper method of seeding and harvesting this grain. It would probably be of considerable public interest to carry out field trials with the object of ascertaining first, the proper date of seeding, system of tillage and general treatment; and, secondly, the best variety of flax for the country.

Flax ripens in from sixty to a hundred days and, therefore, lends itself admirably to late sowing, thus extending the spring season and rendering it possible for farmers to put in larger areas under crop than otherwise they would have been able to do. This peculiarity, of course, opens the door to temptation inducing farmers to put land into flax at a date rendering it more than problematical whether any returns will be received or not. The best quality of flax grown in the United States is said to be produced at Green Bay, Wisconsin, where the average temperature for the growing months is 54 degrees. This is probably somewhat below the mean temperature for the corresponding period at most Territorial points.

A yield of 15 bushels of flax to the acre will produce 315 lbs. of oil. In a single bushel of well cleaned flaxseed there is on an average about 21 lbs. of oil, the chemical tests showing about 35 per cent. of oil. The ground flaxseed cake, which is so much in favour with foreign buyers, contains in the neighbourhood of 8 per cent. of oil after the major portion

of the oil has been extracted. A single bushel of flax will produce about 40 lbs. of oil meal, or cake. This cake is a very concentrated protein food, being valuable because it is a strength-producing food. Nearly one-third of the weight of the oil cake, which is in such a sharp foreign demand, is composed of protein, the most precious strength-producing material in the animal or vegetable world. Practically all the protein of the seed is recovered in the cake: and investigators show that the cake is really richer than the seed because the 40 lbs. of cake contain all the protein contained in the 60 lbs. of seed making up the original bushel.

Very erroneous ideas prevail as to the soil exhausting properties of flax. As a matter of fact this plant removes less chemical food from the soil than most other farm crops do. Oats require about the same quantity of nitrogen and phosphoric acid, but nearly twice the quantity of potash as is required for flax. A successful crop of flax depends largely on having available in the soil a sufficiency of the foods required by this plant. The heaviest drain is on nitrogen, of which virgin soil usually contains more of this constituent. This is apparently the reason why flax is usually a good crop on new prairie land.

TRIALS OF MALTING BARLEYS.

In spite of the unfavourable seasons which have visited the Calgary Experiment Station the varieties of barley imported from the Gallatin Valley in Montana have given very promising results. As pointed out in previous reports, the production of malting barley is one of the most important industries of Montana and, to some extent, of the Pacific states, and there can be no reason why this industry should not be equally successful on the Canadian side. It is of interest to note that a project is now on foot for establishing a large malting plant in the vicinity of Lethbridge. It is expected that the plant will be one of the largest and most modern on the American continent, and that between thirty and forty men would be continuously employed. The present capacity of this plant will be up to a half million bushels per annum. A market is looked for in Australia, China, Japan and British Columbia.

The fact that adverse and unprecedented weather conditions have largely destroyed the experiments with barley conducted at Calgary during the past years demonstrates the necessity for initiating a system of agricultural experiments much more widespread in its character. One of the most important requirements of a successful malting industry is the introduction of the proper varieties of barley. This is what has made Montana barley famous. It would be well if sufficient seed were procured of the best varieties of malting barley available to admit of more extended field trials being undertaken in co-operation with the agricultural societies.

TRIALS OF ALFALFA.

The Turkestan alfalfa seed procured last year for the Calgary Experiment Station was duly seeded and a good stand obtained. Time only will tell whether the variety is sufficiently hardy to

withstand our winters. The value of alfalfa has only been generally recognised during the last twelve or fifteen years. It has been found that where there is water from five to ten meters below the surface this plant sends down its roots into the subsoil often as thick as an arm, and draws from it moisture, which makes the alfalfa independent to a great extent of rain. Under these favourable conditions the plant becomes perennial. Even after long droughts it remains green. It produces four or five, and often more, full crops in the year. A field of alfalfa carries four or five times more cattle and sheep than when in natural grass, and the cattle, sheep or pigs, are turned into the alfalfa to feed and fatten upon it. Fifteen years ago the area laid down with this plant in the Argentine Republic was inconsiderable. In 1891 there were 1,500,000 acres of it, and in 1893 3,000,000 acres. This conveys some idea of the value attached to this plant in that country. I would strongly recommend that some trials be made with sand lucerne (*Medicago media*). The difference in appearance of this plant and the ordinary varieties of alfalfa or lucerne are so slight that it is a difficult matter to distinguish between them; the most notable difference is the colour of the flower, which ranges from a bluish and purplish tint to a lemon yellow. Sand lucerne is, like the alfalfa, a deep-rooting perennial plant sending its tap roots to distances of from twelve to fifteen feet into the ground. This variety is said to have successfully withstood the severe winters of Michigan, where the ordinary alfalfa is very easily killed. The plant is fond of a sandy soil, as its name implies, and ought to do well in many portions of the semi-arid West. It is a particularly high yielder of hay and, in fact, a most desirable forage plant. A plot on the Michigan Agricultural Experiment Station seeded down in 1897 produced in 1898 about $3\frac{1}{2}$ tons of cured hay per acre, in 1899 $5\frac{1}{2}$ tons, in 1900 $6\frac{1}{2}$ tons and in 1901 about 7 tons. As to the feeding value of all varieties of alfalfa there can only be one opinion, namely, that it is exceeded by no other known forage plant in the world. Any variety of alfalfa that will produce crops such as those quoted above would revolutionise stock feeding methods in the Territories and rapidly make our farmers rich. The introduction of high yielding varieties of cultivated grasses and other forage plants will claim the attention of the Department more and more as the country gets settled up and stocked, and hay sloughs eaten down or acquired by settlers.

TRIALS OF FORAGE GRASSES.

The same reasons that render it advisable to conduct tests of alfalfa, namely, the occupation and denser stocking of the range and the deterioration of the native grasses in dry seasons, suggest the advisability of initiating trials of forage grasses throughout the Territories. The most popular variety of cultivated grasses used in the country at the present time is undoubtedly the awnless brome grass (*Bromus inermis*). While this grass has proven very satisfactory, it must by no means be concluded that better results cannot be obtained from other varieties. It is a significant fact that upon the Experiment Station at Calgary, red top yielded almost twice as much cured hay per acre as the brome grass and almost three times the quantity of the timothy hay yield. I would strongly recommend that the subject be enquired into during the present year and that a few suitable varieties of grasses be selected in order that

co-operative trial plots may be established throughout the Territories at a future date. In making this selection particular attention should be paid to the drought-resisting quality of such grasses. In years of plentiful rainfall it is usually no trouble at all to obtain sufficient feed; it is when dry seasons occur that this becomes a problem of importance.

TRIALS FOR 1903.

The following memorandum outlining the work the Department has in view for the coming season has recently been sent to all presidents and secretaries and members of "experiment committees" of Territorial agricultural societies. As replies containing the selections of these societies come to hand the necessary seed and full instructions will be promptly forwarded.

MEMORANDUM.

As intimated in a letter read at the last general meeting of your agricultural society this Department has decided to initiate during the present season a system of co-operative field trials. The intention is that the seed will be furnished free by the Department and that your society should make arrangements with one or two of the most intelligent and painstaking farmers in your district to carry out the experiments or trials in accordance with the instructions sent them by the Department. It is the intention of the Commissioner to submit an amendment to The Agricultural Societies Ordinance, at the next session of the Legislative Assembly, which would authorise him to pay a stated grant for each experiment undertaken by an agricultural society. This would enable such societies to pay those who conduct the experiments sufficient to cover the actual cost of cultivation and seeding and thus make it worth their while to devote the necessary time and attention to this work.

The following are the experiments decided on for the present year. Kindly look over them carefully and have a meeting of your experiment committee at the earliest possible moment and choose what field trials you desire to take up and advise the Department at once in order that the necessary seed may be sent. You may select from one to three experiments and, in replying to this, you should state the name, address and nearest railway station of the person undertaking each experiment, when seed and full instructions will be forwarded.

CO-OPERATIVE FIELD TRIALS FOR 1903.

Winter Wheat.—One acre plots.—The long haul to eastern shipping points, coupled with the fact that the tendency of the climate and soil of Alberta is to produce a soft wheat from the hard spring wheats so successfully grown in Eastern Assiniboia and Manitoba, makes it impracticable for Alberta farmers to compete in wheat growing with the easterly portions of the Territories. Fall wheat has, however, been introduced with some success. Attention has been called to the opening in the Orient for a cheap grade of white flour and that the Pacific coast states to the south of us are successfully catering to that market by growing a soft, heavy yielding wheat. The distance from Southern Alberta points to Vancouver is not much greater than the wheat districts of the State of Idaho from the seaboard. There is therefore a possibility of Alberta farmers being able to replace their oat crop by wheat if the softer wheats grown so successfully in the Pacific states can be grown there. With the object of testing this three varieties of winter wheats have been secured in order to test their suitability to the soil and climate of Alberta.

Malting Barleys.—One acre plots.—The farmers of the State of Montana are successfully growing a barley for malting purposes and exporting it to Buffalo, New York, and even to Germany. It is grown on a rich, black soil and under irrigation. There is a growing market for malting barley. That grown in Montana is a two-rowed variety and a supply of it has been obtained to test it in Alberta. A six-rowed Canadian variety has also been secured and both will be tested with and without irrigation.

Early Oats.—One acre plots.—As oats has become a staple crop in Northern Alberta and Saskatchewan it is highly important that as early a ripening variety as possible be secured so that the crop may be safely harvested without frost.

With this in view two early ripening varieties have been selected for trial. They have not given quite as heavy a yield as some of the late varieties but they are from 8 to 10 days earlier in ripening. This test is particularly suitable for Northern Alberta and Saskatchewan.

Peas.—One-tenth acre plot.—This is simply a demonstration of how successfully this valuable grain for feeding purposes can be grown. It is suitable for all parts of the country.

Rape.—One-tenth acre plot.—This is intended to demonstrate the great value of rape as pasture for hogs, sheep or cattle. While applicable to all parts of the West, this experiment is particularly adapted to the grain growing portions of Assiniboia. If the raising of hogs is to be successful pasture of some kind must be provided and rape furnishes an abundant and easily grown supply.

Corn.—One-tenth acre plot.—Abundance of cheap corn lies at the base of successful feeding operations. One variety of corn, obtained from sixty miles south of the boundary, will be used to test the possibilities of growing a variety of corn that will ripen here. Another variety will be used to show the large amount of fodder that can be grown upon a small area, either for summer feeding or to be cured for winter use. This experiment is particularly suitable for South-Eastern Assiniboia.

Clovers.—One-quarter acre plot.—A demonstration plot to see if clovers will grow and withstand the winter.

Grasses.—One-half acre plot.—A demonstration of the value of different grasses grown side by side.

CALGARY EXPERIMENT STATION.

The following is the report of Mr. P. T. Bone, C.E., Manager of this station :

I have the honour to submit the following report of work on the Calgary Experiment Station for the year 1902 :

During the winter there was very little cold weather and the conditions were on the whole extremely favourable for stock. Spring opened about the middle of April and the weather continued fine until the end of the month. From the beginning of May, however, right on during the following months of June, July and August rain fell incessantly. In that period there were 60 wet days which gave a total of nearly 28 inches of rainfall. Old timers and Indians assert that areas were flooded that bore no indications of having been covered by flood waters for several centuries.

As decided on at the beginning of the season the experiments to determine the best varieties of grain for the district were continued but, owing to the unparalleled weather conditions, these failed to give reliable information. On the higher and drier portions of the plots the yields, particularly of oats, were good ; but the irregularity of these drier areas prevented any comparison in yields being made. No comparative tables of experiments with grains are therefore given as they would prove altogether misleading. From the appearance of the crops while growing, however, it was evident that in point of earliness the Canadian varieties of barleys, the dawn wheat, and the Victoria prize and ligowo oats showed much more favourably than the others. Potatoes could not be planted until late in June and naturally made very poor growth, but, as the conditions of the ground for each variety were fairly uniform, a comparison can justly be made.

Fall wheat sown the previous year died during the winter. Only a few stray plants remained alive. The variety was Dawson's golden chaff, obtained from Toronto, whereas the seed of the variety which proved successful the previous year was grown at Pincher Creek. Whether the failure was due to the imported seed or to the wet condition

of the ground before winter set in cannot well be determined. Seed of the Pincher Creek variety grown on the station has been sown this year and will be reported on later.

All the grasses did well with the exception of orchard grass, which was partially winter killed. It recovered during the summer but made little growth.

The experiment of smothering sweet grass by ploughing under when in flower, and seeding with a grain crop, has this year been repeated with satisfactory results. Except on a small portion of the station which was too wet to plough there is no sweet grass now in sufficient quantity to be detrimental to crops.

Alfalfa of the Turkestan variety was seeded on the 25th July and a good catch obtained. This, however, can only be properly reported on after a winter's test.

The following tables give the yields of the grasses and potatoes, which were the only crops that gave results fit for comparison :

GRASSES.

NAME	DATE OF CUTTING	YIELD PER ACRE
Timothy	11th August	1.5 tons
Bromus	30th "	1.75 "
Red top	1st September	3.5 "
Orchard grass .....	.....	Nil
Meadow fescue	26th July	2.5 "

The excellent yields obtained from red top and meadow fescue are particularly noteworthy. If such good returns are maintained these grasses will undoubtedly form an important part of the hay crop of this district.

POTATOES.

NAME	DATE OF PLANTING	DATE OF RAISING	YIELD PER ACRE	CONDITION WHEN PLANTED
Brownwell's winner ..	21st June	11th October	7,200 lbs.	Fairly well sprouted
Earliest of all	"	"	5,200 "	Very badly sprouted
Sharpe's seedling	"	"	6,200 "	Badly sprouted
American beauty	"	"	4,400 "	Not sprouted
" wonder	"	"	8,400 "	Badly sprouted

The delay in planting potatoes due to the wet condition of the ground furnished important information regarding the keeping qualities of the different varieties. They had been stored in boxes in a pit and when opened in June were all in good condition, but some varieties were much more sprouted than others. American beauty showed up most favourably in this respect, not having sprouted at all. Brownwell's winner came next. This variety has so far shown that it best combines the qualities of being a good yielding and a good keeping potato. Last year it gave the best yield and this year the second best yield, and shows second as a keeping potato. American beauty was second best in point of yield last year but poorest this year. It is, however, the best keeping potato of all the varieties tried, and in normal seasons may hold its own as to yield.

While the abnormal rainfall of the past two seasons has prevented experiments under irrigation from being carried out, it is still of the utmost importance to this district to get reliable information on this subject. The belief that irrigation is destined to form a prominent feature in the development of this part of the country is evidenced by the large irrigation enterprise which is about to be undertaken by the Canadian Pacific Railway Company and by the proposed extension of the system of the Alberta Irrigation Company. The introduction of irrigation into Central and Southern Alberta was a natural consequence of a long series of dry seasons. Although, unfortunately for the financial success of the pioneer irrigation schemes, wet years have since prevailed, a recurrence of continued drought may be taken as certain. Irrigation experiment stations have been established in probably every country where irrigation is practised and furnish most important information to the irrigators of their particular districts. The data obtained from these, however, can never wholly apply to Alberta. The seasons here are so short, and the time available for applying water is confined to such a small portion of the season as compared with other irrigating countries, that this district must for the most part rely on its own experiments. To use water in the limited time allowed in the most economical manner presents a problem that will take much care and thought to solve.

The conducting of irrigation experiments on the station for which purpose it was primarily established must therefore demand much attention in the future.

The nature of the experiments which have been undertaken with grains have been to determine the best varieties for the district. Although, owing to hail one year and excessive rains for the past year, these have not been altogether successful, certain information has been obtained which is of interest in comparison with the average results of similar experiments conducted during four years with the same varieties of oats at the Indian Head Experimental Farm. The comparison is here given in tabular form.

TESTS of Three Varieties of Oats.

INDIAN HEAD.			CALGARY.		
Order	Point of Yield	Point of Earliness	Order	Point of Yield	Point of Earliness
1st	Banner	Victoria prize . .	1st	Victoria prize	Improv'd ligowo.
2nd	Improv'd ligowo.	Improv'd ligowo.	2nd	Improv'd ligowo.	Victoria prize .
3rd	Victoria prize .	Banner	3rd	Banner	Banner

From the foregoing table it is seen that in point of yield the order at Indian Head and at Calgary is reversed, but that there is no material difference in the earliness. While it would be unwise to come to definite conclusions on such a short trial as has been conducted at the station it is apparent that the results obtained at Indian Head may not apply to Calgary. The short season, combined with a usually lower average temperature than in Assiniboia, demands above all things the earliest possible varieties for the Calgary district. Until these varieties are fairly well determined one cannot take up systematically the important

work, which the testing of varieties leads up to, of establishing a system of crop rotation. In any well planned rotation for this district the grasses which are being experimented with must form an important part. The line of work for the coming season should therefore for the most part consist of a continuation of the experiments already undertaken with varieties of grains and grasses.

TABLE of Monthly Summaries of Meteorological Returns.

Month.	Max. Temp.	Min. Temp.	Av. Max.	Av. Min.	Mean	Date Max.	Date Min.	Rain	Snow	Total
January.....	55	—32.2	33.5	6.8	20.1	11th	25th	.05	2.25	0.27
February. . . .	50	—20.8	24.9	4.2	14.5	20th	9th	...	4.5	0.45
March	51	...	36.3	...	...	12th	...	...	4.0	0.40
April.	65.5	...	51.2	...	...	16th	...	...	6.75	0.67
May.	80	24.8	58.2	36.1	47.1	27th	4th	7.23	8.25	8.05
June	72.9	28	60.2	38.7	49.5	7th & 23rd	6th	9.81	0.75	9.88
July	81.9	36	72.7	45.4	59	21st & 25th	28th	5.29	.....	5.29
August	93.9	31	71.4	43.7	57.6	5th	29th	5.09	.....	5.09
September	73.9	24	60.8	33.2	47	6th	20th	1.47	.....	1.47
October	74.4	19.5	57.4	30.8	44.1	4th	27th	0.69	1.25	0.81
November.....	49.9	—18	31.6	11.7	21.7	1st	8th	...	8.9	0.89
December	47.9	32.5	22.3	0.5	11.4	15th	7th	.....	8.5	0.85
Totals....								29.63	45.15	34.12

Note: Owing to accident to minimum thermometer no minimum records were obtained for March and April.

IV.—TRANSIT AND MARKETS.

The distinct inland position of the North-West Territories renders the questions of markets and transportation of almost vital importance. It is apparent that a gulf exists between the district of Alberta and the present settled areas of Saskatchewan and Assiniboia. Farmers in the easterly portion of the two latter districts devote their attention chiefly to the production of hard wheat, the westerly portion of Saskatchewan is almost uninhabited and Western Assiniboia is rapidly becoming the centre of the ranching industry with its exports confined entirely to beef, wool and mutton. The question of where the hard wheat and the beef is to be marketed was solved many years ago, and the fact that these products must be disposed of in European markets practically renders Assiniboia and the present settled portion of Saskatchewan tributary to an eastern outlet for the bulk of their products. The district of Alberta is quite differently situated. In years gone by Central and Southern Alberta were entirely devoted to cattle ranching, but the reclamation by irrigation of extensive areas of land, and the close settlement thereon, is rapidly changing the economic character of those portions of Alberta, and the result is that nearly all the large cattle outfits are gradually moving their stock eastward, and it would appear to be only a question of a very short time when parts of Southern and the whole of Central Alberta will be as thickly populated as the northerly portion of that district and the bulk of the ranching will be conducted in Western Assiniboia. Experience has amply proven that in no portion of the district of Alberta can the growing of hard spring wheat be successfully prosecuted as a business undertaking, and even if it were possible to grow such wheat for export the remoteness of Alberta from the present hard wheat markets would surely render it a most unprofitable business to engage in. The principal export products of Alberta at the present time are cattle, pork, dairy products, timothy hay, oats and barley, and it is a significant fact that, with the exception of a rapidly diminishing percentage of the beef, all the other products of that district find their way to the West, and it will only be a matter of a very short time when the whole trade of Alberta will be entirely with the West.

The markets for the hard wheat and beef products in Saskatchewan and Assiniboia leave nothing to be desired. Europe wants all that we can produce. It cannot, however, be said that the market conditions for all Alberta products are at present in an equally satisfactory condition. A great depression has existed in the mining districts of British Columbia for a considerable time and the demands from that source have consequently diminished in sympathy therewith. There are, however, possibilities in the Orient probably not dreamed of by the majority of Alberta farmers. The trade of the Orient is comparatively speaking of recent origin. In twenty-five years the foreign trade of Japan has increased at least ten-fold. In the matter of the exports of meat, wheat, flour, cheese, butter and woollens, Canada is Japan's next door neighbour, controlling the whole "red line" route from east to west, and from the motherland to the furthest confines of the Pacific. Less than three weeks will transfer a cargo from the Atlantic seaboard to Yokohama wharf,

and the government system of cold storage on railways and steamships renders the transportation of such perishable articles as butter, cheese and meats as safe and as easy as the carrying of the roughest imperishable lumber. Less than ten years ago the United States imported from Japan about thirty million dollars' worth of merchandise, while that country only bought about five million dollars' worth of United States products. Today the United States' export business to Japan is over three hundred million dollars per annum, while the imports are less than nine million dollars. The population of the Orient is stated to be one-half of the population of the world, the population of Japan alone being over forty million. This enormous increase in trade has by no means been confined to the United States, a small share having been promptly monopolised by Canada, but it must be confessed that our enterprising neighbours have as usual captured more than their proper share. However, the trade of both Canada and the United States with the Orient is susceptible to great development. European nations will make a bid for it, but they are handicapped by two oceans while we have only one to cross.

The great industry of British Columbia, as well as the Pacific states, is lumbering, which gives rise to an enormous eastbound traffic over the various transcontinental railways. In the past this has involved the hauling of an almost corresponding number of empty cars westwards. As the cost per mile of hauling these cars west loaded with products intended for the Orient would be only slightly above the cost of hauling empties, it will be readily seen that the railway companies have been able to foster an Oriental trade on a basis of a very low rate of transportation. Furthermore, the return cargoes from Oriental ports are very largely overland and constitute a most important volume of eastbound traffic. These two factors in themselves would appear to render a grain route to the Pacific a feasible business proposition. On this phase of the subject the Vancouver Province has the following observations to make in a recent issue :

Largely owing to the tremendous increase in the amount of Oriental freight received at this port the shipments by rail to Eastern Canada, the eastern and middle States and to the Atlantic seaboard have multiplied at such a rate that now more freight goes east over the Canadian Pacific Railway than comes west. As a consequence it is a very hard matter for the management of this division of the road always to have on hand as many freight cars as could be conveniently handled. Then again, the recent large increase in the eastern shipment of lumber and shingles, cut and manufactured on this coast, has also made a heavy call on cars. As it does not pay to make long hauls with empty cars, what is more natural than that grain from the North-West should be loaded on cars the haulage of which would otherwise be dead loss ?

The line with the easiest grades at present projected runs from Edmonton to Vancouver *via* the Yellowhead Pass, the North Thompson and Kamloops. From Edmonton to the summit of the Yellowhead Pass the ascent is only about 1,000 feet in nearly 250 miles. From there on there is a slight divide to be surmounted between the Fraser Valley and the head of the Thompson, and after that it is down hill nearly all the way to the coast. This line avoids both the Selkirks and Gold range and ascends the Rockies by the easiest grade on the Canadian side. Between this and other lines on this continent, by which grain can be transported from the middle west to the Pacific coast, there is absolutely no comparison in respect to easy grades and economy in traffic.

BALED AND COMPRESSED HAY.

Soon after the introduction of irrigation in Central Alberta the growing of timothy under artificial watering became an industry, and a market for baled timothy hay was found in the Kootenay district, which at that time was enjoying great economic prosperity. During recent years precipitation has been heavy enough to produce cultivated grasses without the aid of irrigation. Up to that period all hay used in the Kootenay district had been imported from the United States. It would appear that the possibilities in the way of extending this industry are very favourable indeed. The total import of hay in the Province of British Columbia and the Yukon Territory during 1902 amounted to \$126,000.00 representing some 8,718 tons. This was about equally divided between the Kootenay and the Yukon. Acting under your directions, I paid a visit to British Columbia last fall particularly for the purpose of looking into the possibilities of the Territories supplying the Yukon and Kootenay with hay.

The hay used in the Yukon Territory is grown principally in the State of Washington near Spokane. The White Pass route tariff is \$50.00 per ton from Vancouver to Dawson and the St. Michael route tariff is the same. The retail price at Dawson is somewhere about \$100.00 per ton. The Americans have the advantage of a short haul from Spokane to Seattle, but, on the other hand, we have a protective duty in our favour of \$2.00 per ton. The price paid for this hay, double compressed, is \$20.00 f.o.b. at Vancouver, and it will be readily seen that, in order to stand the enormous transportation expense of \$50.00 per ton, only the very finest hay produced is eligible for this market.

At Nelson, B.C., I interviewed the local representative of the Brackman-Ker Milling Company, Limited, that practically handles the bulk of the agricultural products business in British Columbia. The geographical position of East Kootenay, which practically covers the main line west as far as Illicilliwaet and the Crow's Nest line to Kootenay Landing, renders it more or less tributary to Alberta beyond the competition of British Columbia growers and, as a matter of fact, nearly all the baled hay that can be obtained in Alberta at the present time realises a fair price there. Practically the whole of the United States import of hay goes into the West Kootenay, which represents the largest consuming area. The balance of the requirements of this district is supplied from local sources, principally from the Okanagan and Shushwap valleys. As a rule the American hay is preferred by Kootenay consumers. One reason why very little attempt has been made in the past to obtain hay from Canada is the excellent organisation of the American hay growers in Washington. Almost every large hay producing farm between Spokane and the Canadian boundary line is supplied with telephone connection and any reasonable quantity of baled hay can thus be ordered and shipped almost the same day. Add to that a much lower farm price than what prevails in Canada, and a uniform excellent quality, and it will be realised that there is very little incentive to those engaged in the business to attempt to develop a Canadian production. The price of American timothy hay laid down in the West Kootenay ranges from \$15.00 to \$17.00 per ton baled. The price on the American side is \$8.00 to \$10.00 according to quality, freight to Nelson \$5.00 per ton, duty \$2.00 per ton. The maximum price for the last three or four

years is \$17.00. One disadvantage in connection with hay shipments from Alberta to the West Kootenay is the flat rate applicable to those points, which is somewhat too high to admit of a profitable business being done. In the East Kootenay district, where Territorial hay has been on the market for a number of years and where a very satisfactory mileage rate from Alberta points is in force, our hay has not gained an altogether enviable reputation. Farm prices in Alberta have ranged from \$11.00 to \$13.00 per ton, baled, and the temptation has been very strong to our farmers to allow the grass to grow beyond the proper time before harvesting in the hope of effecting a higher yield to the acre. Experience has amply proven that this is a very shortsighted policy and that it only results in a loss in weight as against a gain in bulk. The effect of this practice was, of course, that our hay earned the reputation of being too fibrous and coarse and much inferior to either the United States or British Columbia article. I might state that the hay produced in British Columbia, although of good quality, is very seldom pure, but mixed with a large percentage of clover hay which the consuming public strongly objects to.

I made it my business while at Victoria, British Columbia, to carefully examine a shipment of compressed hay destined for the Yukon and also a number of bales of timothy hay imported from the United States as well as some produced locally for the Kootenay trade, which I was informed were fairly representative samples, and I came to the conclusion that the Territories should be able to produce an equally good, if not superior, article with very little trouble. It might here be noted that timothy is a native of Alberta, a true variety thereof growing profusely in the foothills from the international boundary line north. Wherever eastern timothy hay has been brought in and seeds scattered along the roads or trails, or upon the streets of villages in the Territories, a good stand and excellent growth is made. It is a significant fact that the greater part of the roads and trails in the Prince Albert district are simply covered with introduced timothy. It is, therefore, evident that this grass is one which readily lends itself to the climatic conditions of the Territories.

No means have been devised to ascertain the quantity of timothy now produced in the Territories annually, the Canadian Pacific Railway Company having been unable to analyse its traffic returns to the extent of compiling statistics of the quantity shipped. It may, however, safely be concluded that the amount is very small. The cost of baling hay in the Territories is usually from \$2.25 to \$2.50 per ton, while the cost of compressing in the State of Washington is, I understand, only \$2.00. It would appear that this work could be done more cheaply and thus leave increased profits for the grower. It is a fact that no country on the face of the globe can produce finer timothy than is grown in Northern Alberta and on the irrigated lands of Southern and Central Alberta and, for reasons stated elsewhere in this report, it is to be hoped that the farmers of Alberta will devote more attention to this profitable crop in the future and reduce the area under oats until it can be shown that a market exists for that cereal beyond British Columbia and local requirements.

A timothy field will usually yield four crops before the sod becomes too thick and has to be broken up. The only expenses in connection with a crop of grass is the cutting, stacking and baling, and in this re-

spect it compares most favourably with an ordinary grain crop involving ploughing, seeding, cultivation, cutting, stacking and threshing every year. One to three tons of timothy per acre is readily grown where a good stand on fair land is made, and the net returns have seldom been below \$9.00 to \$10.00 per ton on the farm. A market worth several hundred thousand dollars per annum is awaiting our farmers and, in view of the low price of oats which is bound to prevail if the present rate of production is maintained, it would surely pay them to seed down part of their lands.

MARKET FOR OATS.

This cereal must be considered the staple product of Northern Alberta. The enormous increase of the area under oats has resulted in more than trebling the output of that cereal in the Territories since 1898 and it is, therefore, only during the last couple of years that the problem of disposing of a considerable surplus has claimed serious attention. A very considerable quantity of oats is now milled at Strathcona, and British Columbia has also consumed a large proportion of the Alberta crop, but the production is now vastly beyond these demands at present. It is, of course, to be devoutly hoped that a very large quantity of oats and other coarse grains will be consumed in the feeding and finishing of live stock for market. But this practice is not very wide spread at present and will not be in the near future. The crop of 1901 was the largest in the history of the district. Fortunately, a demand, created by the hostilities in South Africa, existed there for all that could be spared and, through the agency of the Dominion Department of Agriculture, buyers were put in the field and steamships chartered to take the grain to Cape Town. During the early part of last year the yield promised to be equally large and the district was again face to face with the problem of finding outside markets for the surplus oats. It was found that the South African demand no longer existed and the Department, therefore, placed itself in communication with the Boards of Trade at Edmonton and Wetaskiwin, centres of the principal oat growing districts, as well as with the Canadian Pacific Railway authorities, with a view to having Alberta oats placed on the Australian market. A very severe drought has prevailed in nearly all the Australian States during the past few years and the demand there promised to be a very large one and quite beyond the ability of New Zealand to supply. Standard samples of oats were procured by the Department and, during a visit to Vancouver, I made arrangements with the Canadian Pacific Railway authorities to have these samples consigned to the Australian agent of that company at Sydney, N.S.W., with instructions to him to place these samples in the hands of the principal brokers in that city. Destructive hail storms which occurred in Northern Alberta prior to harvest time somewhat reduced the quantity of oats for export, but it is understood that a considerable quantity of Territorial grain found its way to Australia. In addition to Territorial shipments, Parrish & Lindsay, of Brandon, shipped 100,000 bushels of Manitoba oats *via* Vancouver to Australia.

The following official report upon the market for oats in Australia, made to the Dominion Minister of Trade and Commerce by T. S. Larke, the Canadian Commercial Agent at Sidney, New South Wales, dated the 7th of October, 1902, throws some further light on the subject:

On the evening of the 28th I received the following cable from the deputy minister: "Wire price oats and probable demand."

The next morning I replied: "Eighty-four cents, probably firm four months. Thin much disliked."

Before doing this I consulted again leading produce houses and while opinions differed the general opinion was as I cabled. As I have stated in previous reports this market is a difficult one to gauge and that for oats is just now affected by two special considerations—the rainfall and the importation of maize from Argentine. Several cargoes of the latter are now on the way and it was raining as I cabled but still, I deem, the demand for oats, unless a very much larger quantity than I think can be landed here in four months, will keep the price quoted firm. The price went up a couple of cents that morning and was two more than I quoted. I added, "Thin much disliked" because the samples sent here from Canada, as I have previously stated, have been of this sort and some of them inferior and dirty. They found no favour in the market and an offer could not be obtained for them. The market wants a full bodied, clean, white oat, like the Canadian potato oat.

The position of the market just now is that there are some stocks here brought from Victoria and New Zealand. The supplies here are nearly exhausted. There will be naturally no oats from grain raised in New South Wales this year. The Victorian and Tasmanian crop is yet uncertain but cannot come on the market until late in January. The New Zealand crop is likely to be large but cannot come here until the end of March. Some may be harvested in South Australia in December but not much. I think for this market there will be a certain demand for oats whatever may happen and at prices that I think warrants importations from Canada until the end of December but the amount is so dependent upon the rainfall and the maize importation and any statement of probable price I could not venture a statement of the probable demand lest it might be misleading. I trust I may have samples and some idea of landed cost by next steamer and if so I will again cable. The business must be carefully done. If even a cargo of five thousand tons were thrown on the market it would be likely to cause a slump but if it were stored and sold as required I think a million bushels could be sold in four months in New South Wales and Queensland at prices I have quoted. As soon as the New Zealand crop can be landed here it is hardly likely Canada could compete. If the crop is large, as it is probable it will be, they can be landed under two shillings per bushel.

It is now four months ago since I called attention to the prospective openings for grain, etc., in this market and asked for the addresses of those who were prepared to supply these articles with samples and prices at the earliest moment. So far I have just received one reply to these requests. Already United States firms have arrangements made to take advantage of any opening that may offer and unless I have some further advices by the next mail it is possible Canada may lose the direct trade she ought to get. I have given all the information I have and some correspondence has been begun by both letter and cable but there should have been much more done. It is a trade that must be done on the moment and hence all the lines of communication should have been arranged before hand. It is not too late for wheat as millers are holding off from buying and are not likely to buy any quantity until they have fuller knowledge of what the Australian crop will be.

In grains as in flour Canadians must take some risk and do the exporting. Some importation of wheat is likely to be done by Sydney firms but is a very conservative market and not many are inclined to do what they term a "speculative business," that is to invest in products new to the market or from a new source. In these lines as in most others the seller must seek the market and make it. After he has done, he will find importers who will seek his products. Unless extra steamers are put on I fear trade will be impeded by lack of accommodation. I am advised the space in the mail steamers has been taken up to nearly the end of the year.

NEW MARKETS FOR WHEAT.

Under the section devoted to agricultural experiments I have commented on the possibilities in the way of the production of winter wheat in Alberta, and have also referred to the fact that an enormous market is opening up for a cheap grade of flour in the Orient, such as is manufactured from the soft winter wheats produced in the Pacific states. Over \$8,000,000.00 worth of wheat was exported *via* Puget Sound during 1900 and some \$36,000,000.00 worth from all Pacific coast points.

The Japanese Government some four years ago entered into negotiations with the Federal Government urging the disallowance of certain legislation passed by the Province of British Columbia prohibiting the admission of Japanese into Canada. Success was followed by the natural desire on the part of Japan to cultivate international trading relations with Canada, and the latest outcome has been the decision of the Dominion Department of Agriculture to co-operate with the Government of Japan in furthering the success of an International Exhibition to be held at Osaka, Japan, in 1903, by the furnishing of a section illustrative of almost everything grown or produced in Canada. One of the main features of the Canadian exhibits will be the making on the spot of bread from Canadian flour by an expert baker. Canadian hard wheat flour of the sort that will be exhibited contains by actual analysis about one third more of albumenoids than the best quality of Hungarian flour, and the albumenoids or gluten, being more tenacious, yield a dough which rises better and holds its position in the baked loaf. When this has been brought home to Japanese consumers by actual demonstration it is hoped that the result will be a demand for Canadian flour in that country far in excess of the paltry \$8,410.00 worth exported last year.

The following editorial from the columns of *The Modern Miller*, an American technical publication enjoying a high reputation, is of more than ordinary interest to Territorial wheat growers:

A Canadian grain exporter, in an interview printed in this paper last week, remarks that he has given more thought to getting wheat from the United States than he has to our millers taking Canadian wheat. Canada has been constant in its wheat production, with the exception of this year, as is shown in the record since 1895. In the crops of the past seven years five have approximated 60,000,000 bushels. This year favourable conditions and an increased acreage in Manitoba, Assiniboia and Saskatchewan, increases the Canadian crop to an estimated 100,000,000 bushels. The influx of some 40,000 settlers from the United States into the wheat territories of Canada has created an impression that Canada is soon to be the granary for the mother country. In fact, a Canadian writer says, without the slightest doubt, Canada will be able to furnish all the wheat Great Britain will need to import.

British flour importers, quite naturally, never lose an opportunity to depress the spirits of the American millers and incidentally depress the price of flour. American millers will hear enough about Canadian wheat being ground by British mills to imbue them with the idea that the whole Canadian crop was dumped in British mill elevators. British mills, according to reports, will never run short of large stocks of the choicest and finest wheat grown in Manitoba, imported at an advantageous price to undersell the flour manufactured in the States.

In our opinion, Canadian wheat will find as good an outlet to the Orient as it will to the British mills. The development of the wheat fields of the north-west is scarcely more pronounced in the Canadian provinces than it is in our own western states. Railroads are developing the wheat regions of the Pacific north-west, but the wheat production has not kept pace with the demand. No portion of the States is being developed more rapidly than the wheat regions of Washington and Oregon. The stream of immigration has been the subject of much comment and the railroads are encouraging the development of the wheat lands along their lines. Yet notwithstanding all this, wheat in Tacoma at this time is higher than at Chicago, a relative enhancement of value of 25 cents per bushel at Tacoma. This is caused by the extraordinary demand for wheat and flour for the Orient. China, South Africa and Japan are taking flour in large quantities from the Pacific seaboard. Wheat, too, is moving as it never moved before to Australia and the Orient. Forty per cent. of the wheat shipped is going to Australia. Under the stimulus of a rapidly increasing flour demand in the Orient, and increased values of wheat on the Pacific coast, there is a strong possibility that the Canadian wheat exporters, as well as Canadian flour exporters, will find a future trade to the Pacific.

British mills draw wheat from the United States, the continent, the Argentine and Canada and have enough sources of supply to get plenty of wheat to grind, with or without Canada. A shortage in the Argentine will be supplied by

Canada, and if Canada fails of a crop Galveston is glutted with shipments from Kansas. Just now Canada has a surplus, but Australia's shortage is an offset. Liverpool wheat buyers on the Pacific coast find themselves unable to pay as much for the wheat as Australian buyers are paying.

From this the conclusion can be drawn that the Canadian wheat crop will not be a permanent surplus to harass the millers in the flour trade of the United Kingdom. It will be surprising if the future does not develop an export trade in wheat and flour from the Pacific coast, in Canada, to the Orient. The development of the wheat regions of the north-west in Canada and in the States is not likely to be more rapid than the development of the trade in the Orient. British mills will get wheat to grind from some source, and, in our opinion, the wheat of Manitoba in the future will not be much cheaper than any other source of supply, so long as the Pacific coast mills are clamouring for wheat and the trade in the Orient is increasing its demand. There will be other markets developed, beside Great Britain, to assimilate the increase in the wheat production in Canada.

Owing to the long continued drought in Australia most of the states of that commonwealth have been in the market for breadstuffs. In fact the demand for Pacific coast wheat has been something extraordinary this year. Australia, South Africa and China have all been buyers from this section and at much higher prices than have generally been prevalent as compared with former years. Great Britain, which as a rule gets the greater proportion of the shipments from the Pacific coast, has practically received none from the country west of the Rocky Mountains. In previous years extensive shipments of soft wheat and flour have been made to Australian points from the State of Oregon, but this trade is now rapidly being diverted to Canada, chiefly through the efforts of one or two enterprising milling concerns. It is now estimated that the Canadian flour shipments exceed fifteen hundred tons per month in addition to the whole wheat exports. Great difficulty has in the past been found in obtaining the necessary steamship accommodation. So far the Canadian shipments have been entirely composed of hard wheat and hard wheat flour, which, however, has not been received in the Orient with the readiness that might have been expected, considering its superior quality. The demand there, which has been created by Pacific states exports, has been entirely for a white flour of weak baking properties and it is difficult to convince consumers there that the darker and stronger flour milled from our hard wheat is of superior quality.

The following, taken from The Queensland Agricultural Gazette, illustrates the present condition of affairs there with respect to the market for wheat:

There is a firmer feeling in the English breadstuffs market, but this only interests Australia this season as a buyer of wheat and flour from the United States and Canada. Varying estimates are put forward as to the probable requirements of cereals by importation to the Commonwealth till next year's harvest, and the general opinion seems to be about 225,000 tons of wheat or its equivalent in flour will be needed in the buying states. As South Australia only will have any surplus to spare, and that estimated at not more than 100,000 tons, a considerable quantity from overseas will be required. Already it is said some 40,000 tons are in transit and being landed from California, and the market there has been advanced 2d. to 3d. per hushel in consequence of this unusual demand from Australia. The harvest prospect in Queensland and New South Wales could hardly be worse, and, although in some parts of Victoria good crops will be reaped, the season is more or less a failure over three-fourths of the wheat area in that State, and it is reckoned very little, if any, breadstuffs will reach either Sydney or Melbourne from country districts, so that these cities will have to be mostly fed by seaboard. During the past week a movement has been set on foot in Sydney, and the State Parliament there has passed a resolution asking the Commonwealth Ministry to suspend the duties on breadstuffs and fodder for the year 1903, and politicians in Queensland seem inclined to follow the lead of Sydney.

While much of the Oriental supply is purchased on sample and not on grade, it is of interest to study the wheat grades of the State of Washington for the year 1903 as showing the standards of the wheats we would be competing against in the Oriental markets. Bluestem wheat is divided into four grades, choice milling, No. 1, No. 2 and No. 3. For wheat to be classed as "choice milling bluestem" it must weigh not less than $60\frac{1}{2}$ lbs. to the bushel, must be sound, dry, of good colour, free from smut and must not have been mixed with more than 15 per cent. of any other variety than bluestem. To be classed as "No. 1 bluestem" wheat must be sound, dry, reasonably plump, of good colour and must not have been mixed with more than 15 per cent. of any other varieties than bluestem, and shall not weigh less than 58 lbs. to the bushel. In case this grade of wheat has more than 15 per cent. and less than 30 per cent. of other varieties than bluestem, it may be classed as "No. 1 bluestem, mixed." No. 2 bluestem must be of good colour but little shriveled, reasonably clean, and a good milling quality of bluestem and shall weigh not less than 56 lbs. to the bushel. No. 3 bluestem shall be any wheat that is badly shriveled, or for any cause too poor to be classed as No. 2, but still weighing not less than 54 lbs. to the bushel and suitable for milling purposes. Club wheat is graded in much the same manner, the requirements as to weight, cleanliness and milling quality being the same. Club wheat is likewise graded as choice milling, No. 1, No. 2 and No. 3. A still further classification is known as rejected wheat. This is grain that is so badly shriveled, badly bleached, badly smutted, wet, musty grown or any other cause unfit for the higher grades. The same rules apply to the grading of red and tife wheat.

The great obstacle which Alberta farmers will meet in disposing of fall wheat for export to Oriental ports is the present absence of economical transportation facilities to Vancouver. The flour intended for export *via* Puget Sound is produced from 100 to 400 miles inland; probably the average distance would be 200 miles from tide water. The haul from Calgary to Vancouver is 642 miles; from Edmonton to Vancouver 834 miles. The present freight rate per ton is \$6.00 from Calgary to Vancouver, and \$7.00 from Edmonton. An export business is now done in a somewhat inferior winter wheat produced in the Okanagan Valley, British Columbia. The rate from there to Vancouver is 20 cents per 100 lbs., or \$4.00 per ton. The chief obstacle to any considerable reduction in rates on westbound grain is the heavy grades on the Canadian Pacific Railway main line, which, of course, naturally increase the cost of operation. The completion of the Canadian Northern, Grand Trunk Pacific or any of the other projected transcontinental lines crossing the mountains over easy grades or the construction of the link connecting the Crow's line with the Pacific coast, for which I understand that the V. V. & Eastern Railway Company now holds the charter, would to a very large extent overcome the difficulties in the way of a successful wheat export business *via* the Pacific coast.

GRAIN BLOCKADE.

The hope had been entertained that the congestion of grain storage facilities and the traffic blockade of last year would have resulted in the railways fully equipping themselves for the handling of large grain crops

in the future. No doubt an honest effort was made by the railways to provide extra storage facilities and rolling stock, but the supply in this direction still remained lamentably short of the requirements and they utterly failed to move the crop of 1902 in a manner satisfactory to the farmers. The season was very favourable for the early marketing of grain and difficulty was consequently experienced in keeping country points clear. The railways on the other hand urged that the increasing tendency on the part of farmers to load cars direct from loading platforms seriously hampered traffic. This practice was the result of grain dealers at certain points taking advantage of the congested storage facilities to depress prices. The Canadian Pacific Railway authorities made the claim that the direct loading of cars lessened the use of their rolling stock and motive power in the west by over fifty per cent. While the privilege of loading direct may justly be regarded as a valuable safety valve, it cannot be successfully argued that the handling of an enormous crop by such antediluvian methods can in the end possibly result in commercial advantage, and it is sincerely to be hoped that the differences between dealer and producer may in the future be so adjusted that the farmers will find it more profitable to use modern elevators for handling their grain and not again find it necessary to resort to direct loading.

Voices of warning have frequently been raised against the indiscriminate rushing of wheat to market within a comparatively short period, and the statement has been made in the United States, on good authority, that the early marketing of large quantities of wheat by Canadian farmers last year was directly responsible for demoralising the United States grain market. It stands to reason that when a great crop is rushed into elevators within any limited period a depression in prices must necessarily follow in sympathy with the increased visible supply. While on this subject it is of interest to quote the following article from Bradstreet's:

The American Miller notes that the 50,000,000 bushel wheat crop of Manitoba in 1901 has forced upon the American Miller and economists the disagreeable conviction that the United States wheat grower is no longer the controlling factor in Mark Lane. No doubt this conviction would have come sooner, and to many with more force, if the Canadian car famine had not greatly retarded the movement abroad of the Manitoba wheat crop. Even with a large part of the crop held back, simply because it could not be moved to tidewater in any direction, the American Miller has seen Manitoba wheat taken by British importers at "bargain counter" prices, thus giving British millers a better wheat than No. 1 Northern at a price that is reflected in a stagnant American export flour trade. Unfortunately, the future promises a worse condition rather than a betterment, and for obvious reasons. Manitoba and the Canadian north-west are filling up and developing their wheat lands with great rapidity. No one is prepared to say when this north-west country will produce 100,000,000 bushels of wheat, but it will not be long hence. The 100,000,000 bushels will then be dumped on the English or continental markets within six months, the same as the 50,000,000 are now, for want of granaries on the farm or elevators in the towns to store it. It must be gotten rid of quickly as threshed. The effect on trade is obvious. Millers and elevator men in the north-west see only one way out of this serious dilemma. That way, suggests our flour-trade contemporary, is the removal of the American duty on the wheat. This action would bring this vast volume of wheat under the influence of the American marketing system, which is distinctly a bull, and not a bear, influence. The grain could come to our mills for storage in their elevators and for grinding, and it would be collected in our grain elevators until it should go into consumption naturally, along with American grown grain, and the effect of this system of handling would be beneficial alike to the Canadian and American grain. Milling in bond would not accomplish the same results.

A feature of the grain blockade was the attempt made to establish a market for Canadian wheat in the United States. The Washburn-

Crosby Milling Company, of Minneapolis, promptly bonded several of its mills in order to grind Manitoba and Territorial wheat and a considerable quantity of western wheat was exported for this trade, particularly from Canadian Northern Railway points in Manitoba. It is beyond dispute that the experiment of grinding Canadian wheat in bond turned out a success. In fact, it resulted in a very strong agitation on the part of millers in the northerly states of the Union for a repeal of the Canadian grain duty. This proposal raised a storm of criticism in the United States press. One authority explains that the British buyer knows that the Canadian crop is bound to be exported, as there is no local market available for the bulk of it and an arbitrary price is, therefore, fixed by Mark Lane which now practically governs the price at which American wheat must be marketed. A market in the United States would, therefore, have a tendency to regulate the British supply, in which event the United States grain interests would be benefited by the removal of the American duty. The chief objection raised to the removal of the grain duty in the United States is that the result might be a local depression in prices of wheat during the fall of the year when the Canadian crop is being marketed. American flour milling interests appear to be fully convinced that with the duty removed Canadian wheat would, in the ordinary course of events, seek a market in the United States where the bulk of it would eventually be manufactured into flour and exported in that form.

If any serious attempt is to be made to carry Canadian wheat over an all Canadian route it would appear quite evident that much more extensive storage facilities will have to be provided at country points and that the lake fleet must be materially augmented. Possibly some systematic efforts might be made to induce large wheat growers to partly provide their own storage facilities. It would apparently be economical for groups of three or four farmers on a large scale to club together and jointly construct and own elevators situated at mutually convenient points.

The following statement showing a comparison between the Western Canadian and American wheat receipts at Duluth and Superior terminal elevators during 1900, 1901 and 1902 (to March inclusive), reveals a growing tendency on the part of grain men to ship *via* United States:

For Period August 1st, 1901, to March 31st, 1902.

Month.	American.	Canadian.	Total.
	BUSHELS	BUSHELS	BUSHELS
August.....	1,697,874	.....	1,697,874
September.....	10,298,161	515,348	10,813,509
October.....	5,251,273	1,210,667	6,461,940
November.....	7,144,527	2,065,915	9,210,442
December.....	5,775,409	2,152,382	7,927,791
January.....	1,190,140	695,639	1,885,779
February.....	918,431	164,217	2,082,648
March.....	2,208,539	487,493	2,696,032
Mills.....	3,759,041	.....	3,759,041
Totals.....	38,243,395	7,291,661	46,535,056

For Period August 1st, 1900, to August 1st, 1901.

Month.	American.	Canadian.	Total.
	BUSHELS	BUSHELS	BUSHELS
August	980,946	44,274	1,025,220
September.	2,614,760	103,281	2,718,041
October	1,925,295	104,199	2,056,494
November.....	2,708,928	255,643	2,964,572
December.....	1,791,087	196,993	1,988,082
January.....	688,199	40,254	728,453
February.....	595,175	109,510	704,685
March.....	1,253,544	188,504	1,442,028
April.....	1,229,917	116,958	1,346,875
May.....	316,503	25,120	341,623
June.....	1,168,362	43,525	1,211,887
July.. ..	928,755	27,827	956,582
Mills.	1,976,029	.....	1,976,029
Totals.....	18,204,503	1,256,088	19,460,591

GRAIN Elevator and Warehouse Capacity Statistics.

*CROP DISTRICTS	CAPACITY 1901 BUSHELS	CAPACITY 1902 BUSHELS	INCREASE 1902 BUSHELS
1	675,000	908,000	233,000
2	107,000	241,000	134,000
3	536,000	575,000	39,000
4	618,000	828,000	210,000
5	754,000	1,168,000	414,000
6	.....	.....	.....
7	68,000	228,000	160,000
8	.....	.....	.....
9	220,000	415,000	195,000
10	.....	.....	.....
11	.....	.....	.....
12	347,000	347,000	Nil.
13	58,000	58,000	Nil.
14	.....	.....	.....
15	72,000	72,000	Nil.
16	.....	3,000	3,000
Territories	3,455,000	4,843,000	1,388,000

*For description of Crop Districts see under "Agricultural Statistics."

V.—AGRICULTURAL EDUCATIONAL WORK.

AGRICULTURAL INSTITUTES.

The total number of institute meetings held under the direct auspices of this Department during 1902 was 87 as compared with 76 in the previous year, 16 in 1900 and 19 in 1899, when the work was initiated. In addition to these meetings a large number of independent meetings were held, as will be seen upon reference to the agricultural societies statistics. Only one series of meetings was held during the year. The intention was to have held a second series in July to cover every point of importance in the Territories, but the bad state of the roads, owing to the extremely wet season that prevailed, rendered it inadvisable, if not impossible, to carry out this project.

I referred in last year's report to the difficulties the Department experienced in arranging for meetings at outlying points remote from agricultural societies' headquarters. With the increase of population new centres of settlement are continually being created where meetings are required to be held and, owing to complete lack of local organisation, the difficulties in the way are considerable. In the absence of the formation of an adequate number of additional agricultural societies I would strongly recommend that some machinery be provided under the Ordinance whereby agricultural societies may be represented at outlying points and the Department thus placed in a position to deal with interested persons in connection with the organisation of meetings at such points. This is a very apparent weakness of our agricultural societies' system. In the other provinces of Canada the "Farmers' Institute" and the "Agricultural Society" are two distinct organisations. The former devotes its attention entirely to the holding of meetings and the latter to agricultural fairs. Agricultural societies are somewhat expensive organisations and great objection exists to their duplication. The Farmers' Institute, on the other hand, requires but a small public grant and the policy has, therefore, been to encourage the formation of as many new institutes as possible. With the multiplication of agricultural societies in the Territories the Department would doubtless incur the risk of encouraging the holding of a corresponding number of additional agricultural fairs, which would, in the light of past experience and results, be distinctly unfortunate. Under the circumstances I am strongly of the opinion that the situation can best be met by organising only a few additional agricultural societies and to so amend The Agricultural Societies Ordinance as to provide for each society covering a certain district and having machinery available for organising meetings, not alone at agricultural societies' headquarters, but also at outlying centres of settlement within the area covered by it.

Great difference of opinion exists as to the value of institute lectures and the ground that may legitimately be covered. The experience in provinces to the east and west of us with respect to this work has not always been encouraging, and the suspicion lurks in the minds of many

observant men that the end that might be accomplished through this means of instruction is not always attained. A new departure was made during recent years when eastern lecturers were brought up through the co-operation of Mr. F. W. Hodson, Dominion Live Stock Commissioner, whose department had interested itself in the perfecting of institute methods throughout Canada. These men laboured under the disadvantage of knowing little or nothing about the practical problems farmers are confronted with in the west. This disability naturally limited the scope of their addresses. On the whole, however, the result was distinctly satisfactory, and it is to be hoped that the policy of the Dominion authorities in this respect may be continued.

While the Department cannot, of course, hope to have its institute speakers delve very deeply into the field of science, nevertheless the address given at institute meetings, in order to be interesting and instructive, must to some extent be of a scientific nature. The attitude of many farmers in respect to science as well as the bearing and importance of scientific data upon the every day tasks of the farm are admirably set forth in the following article cut from a leading agricultural journal:

That a misconception of the term science in its application to agriculture exists in the minds of many farmers cannot be denied. It is not uncommon to hear men of seeming intelligence give expression to their views, and in tones of irony make reference to "the scientific." To them it appears to convey the idea of speculation, mystery and unfitness for association with anything of a real practical character. They appear to think that facts not already in their possession are unworthy of acquisition. They have it all, and the man who comes forward as the advocate of new methods based upon the results of scientific research they discredit.

In looking over the past, this is not altogether to be wondered at. Instances are not wanting where the scientist has proclaimed the results of his investigations that later discoveries proved to be untrue. This has occurred principally where men have prematurely undertaken to win fame, or have been over-anxious to enlighten the world on some subject of vital importance, and have arrived at what seemed to them a conclusion before, in reality, the enquiry had rightly begun. Another type to be found a quarter of a century or more ago was the scientist who, untiring in his efforts to benefit his fellow man, particularly the tiller of the soil, lost no opportunity to give advice concerning farming which, owing to his ignorance of farm life, was often unfitted for practical application. Fortunately, such are largely of the past.

Although the scientist has occasionally shown evidence of knowing too little about his science he has, nevertheless, done great things for the farmer. In the ranks of those who gave their time and attention to this branch have been men of rare intellectual ability whose works will ever remain as living monuments to commemorate their name. Hand in hand with the advances which they have made in biology, chemistry, bacteriology, entomology and various other subjects have gone the improvement of man's primitive calling—agriculture—until a brighter era has dawned. The farmer is beginning to know more about his farm and to see that the scientist is his best friend rather than one to be scorned; he discerns that, after all, science is nothing more than knowledge systematised; an association of facts so arranged as to be understood. To our universities and colleges, through the good work which they are doing, and the practical men that are leaving their halls, is due much credit for having created this better understanding. Intelligent and successful farmers everywhere now believe there is something to be learned about the cultivation of the soil, the liberation of plant food, the changes that take place during growth, the habits of insects, and a score of other questions equally significant that are ever under the survey of science.

We must look for great advances in future. Agriculture cannot afford to be deprived of the assistance to be gained from her powerful handmaid, science. Nor will she. The farmer of the future, even more than of the present, will be a believer that those who think will lead. He will never lose sight of the fact that the real object of all industry must be the support of life. As the soil is stirred, the seeds sown and plants produced, it will be done more intelligently than in the past. The one who is ready to profit by the experience and advice of others will be obliged to give place to him who continues ever to study, believing that in all things a great Hand ruleth, and that science is only man's effort to

accumulate and arrange those facts which explain nature's laws and assist in the performance of all that is highest and best in life. To put it in another way: In the growth of crops and animals, nature has certain ways of working. (It is not luck or chance.) To farm successfully we must work in harmony with these ways or laws. By experience and study, we get acquainted with them. To fight weeds or insects best, we must know their nature and habits; to grow continually good crops, we must understand how to keep animals doing well, must feed and care for them according to the laws of their bodies. All this knowledge is simply science, and the better a farmer knows it in reality the more scientifically will he farm, though he may not call it by that high-sounding name.

I mentioned in last year's report that the tendency in modern institute work was to *demonstrate* rather than to *describe*. The result of an additional year's study of the question has rather strengthened my belief in the wisdom of this policy. I would strongly advise that none but thoroughly trained men be in the future employed on institute work and that these men be provided with dissectable anatomical models, diagrams on agriculture, horticulture or live stock subjects, and also that magic lanterns and suitable slides be provided in order that they may be placed in a position to illustrate their ideas. Where possible live cattle—horses, sheep or swine, as the case may be, should be utilised in connection with any lectures given on live stock subjects. I firmly believe that institute lectures would be infinitely more useful and attractive than they could possibly be where the lecturers are confined to a more or less uninteresting recital of facts and figures. I would merely refer to the farmers' live stock judging school, or institute, which has been successfully organised at the Guelph Agricultural College, and also recently in the Province of Manitoba, and to the fact that nearly all eastern provinces are preparing to imitate this example. Work along such lines would, in my opinion, do much to save the situation, and there can be no doubt that in most localities institute work is not making the progress it ought to make, and the chief reason of this unpopularity is the fact that our efforts have hitherto been confined to providing addresses and papers only which do not appeal to the average meeting. At some isolated points good meetings can still be obtained, but in the larger towns small audiences are with difficulty induced to come, principally out of courtesy to those billed to speak. This should not be the attitude of the farmer towards institute work, but I feel certain that, unless some radical departures are made from the present system, these meetings will not become popular with the farmers and ranchers.

The following schedule shows the list of agricultural institute meetings held in the Territories during 1902, with the names of the speakers:

List of Agricultural Institute Meetings held in the Territories during the Year 1902.

PLACE	DATE	SPEAKERS
Flenning	Feb. 24	Angus Mackay, M. Brennan & Andrew Graham.
Moosomin	" 25	
Hillburn	" 26	
Tantallon	" 27	
Churchbridge.	" 28	
Saltcoats	Mch. 1	
Logherg	" 3	
Yorkton	" 4	
Ehenezer	" 5	
Crescent	" 6	
Sumner	" 7	Geo. Harcourt, B.S.A., M. Snow & Geo. Lang.
Ohlen	" 8	
Whitewood	" 10	
Wolseley	Feb. 24	
Ellisboro	" 25	
Pheasant Forks	" 26	
Ahernethy	" 27	
Kenlis	" 28	
Indian Head	Mch. 1	
Fort Qu'Appelle	" 3	T. N. Willing, D. Drummond & Norman M. Ross.
Ridgeway	" 5	
Maclean	" 6	
Balgonie	" 7	
Sintaluta	" 8	
Summerberry	" 10	
Grenfell	" 11	
Broadview	" 12	
Wapella	Feb. 24	Duncan Anderson, M. Brennan & T. N. Willing.
Fairmede	" 25	
Glen Adelaide	" 29	
Arcola	" 27	
Dalesboro	" 28	
Alameda	Mch. 1	
Gainsboro	" 3	
Elmore	" 4	
Carnduff	" 5	
Oxbow	" 6	W. R. Stewart, D. Drummond & N. M. Ross, B.S.A.
Estevan	" 7	
North Portal	" 8	
Weyburn	" 10	
Yellow Grass	" 11	
Moose Jaw	" 12	
Didsbury	" 12	
Olds	" 13	
Innisfail	" 14	
Red Deer	" 15	W. R. Stewart, D. Drummond & N. M. Ross, B.S.A.
Clover Bar	" 17	
Agricola	" 18	
Fort Saskatchewan	" 18	
Rabbit Hills	" 19	
Leduc	" 20	
Wetaskiwin	" 21	
Ponoka	" 22	
Lacombe	" 24	
Point Elma	" 13	W. R. Stewart, D. Drummond & N. M. Ross, B.S.A.
Caron	" 14	
Raymond	" 17	
Stirling	" 17	
Magarh	" 18	
Cardston	" 19	
Mountain View	" 19	W. R. Stewart, D. Drummond & N. M. Ross, B.S.A.
Fishburn	" 20	
Medicine Hat	" 21	
Maple Creek	" 22	

LIST of Agricultural Institute Meetings held in the Territories during
the Year 1902.—*Continued.*

PLACE	DATE	SPEAKERS
Regina	" 13	George Lang, T. G. Raynor, B.S.A., & Dr. A. G. Hopkins.
Cottonwood	" 14	
Lumsden	" 15	
Smithville	" 17	
Rosthern	" 18	
St. Louis	" 19	
Red Deer Hill	" 20	
Colleston	" 21	
Prince Albert	" 22	Professor James Fletcher, C. W. Peterson & T. N. Willing.
Maple Creek	June 16	
Medicine Hat	" 17	
Lethbridge	" 18	
Stirling	" 19	
Raymond	" 20	
Magrath	" 20	
Cardston	" 21	
Mountain View	" 23	
Fishburn	" 24	
Pincher Creek	" 25	
Macleod	" 26	
High River	" 27	
Okotoks	" 28	

ADMINISTRATION.

During the year 1900 agricultural societies throughout the Territories expended the sum of \$37,000.00, during 1901 over \$54,000.00 and the total expenditure for the present year exceeds \$51,000.00. The nature of this expenditure is limited under the provisions of The Agricultural Societies Ordinance. The tendency of the Department since its organisation has been to exercise as close supervision as possible over agricultural societies and to endeavour to divert their money and energy into the most useful channels. Hitherto the details of the administration work has fallen chiefly on the undersigned with the assistance of one clerk who had immediate charge of routine matters, but I am decidedly of the opinion that the time has come when an official possessing the necessary technical skill and executive ability should be appointed to devote his time almost entirely to the development of our agricultural fairs, institute meetings and other work legitimately undertaken by agricultural societies, notably the scheme of co-operative agricultural field trials.

Up to the past year the Province of Ontario maintained a Superintendent of Farmers' Institutes who devoted his entire time to organising and developing institute meetings. Previous to the creation of this office no systematic effort had ever been made to push institute work in Ontario. Anyone acquainted with the results achieved in that province during the past decade through the medium of these meetings will not for a moment question the wisdom of maintaining such an officer. During recent years great dissatisfaction has prevailed throughout the Province of Ontario with respect to the fair system. An enormous amount of money, aggregating nearly \$400,000.00 is expended annually upon these institutions in that province and the consensus of opinion is that this expenditure has been largely wasted. A convention was recently held of delegates from Ontario fairs, and the Department of Agriculture, upon a

resolution to that effect, decided to place the supervision of local fairs under the Superintendent of Farmers' Institutes. By providing for the appointment of a Superintendent of Fairs and Institutes we should simply be following the precedent established in what is undoubtedly the most advanced Canadian province in regard to the administration of agricultural affairs.

AGRICULTURAL FAIRS.

I commented in last year's report upon the deplorable apathy exhibited by many Territorial agricultural societies with regard to the many useful objects for which such organisations are formed and are supposed to devote their funds and energies to, and I also had some remarks to make on the subject of the improvement of agricultural fairs. It is clear that there is now a popular demand for a change in the methods of conducting many of these fairs. The better class of the farming community is fully awake to the necessity for decided improvements, and so dissatisfied are many leading farmers with their local exhibitions that they neither exhibit nor attend.

The attractions at some fairs are of such a low nature that vigorous protests have been raised. So serious has this dissatisfaction become that the directors of fairs are finding it increasingly difficult to draw out the class of people for whose benefit the fairs were originally established.

Laws passed in various provinces many years ago, providing for annual grants to encourage the holding of agricultural fairs, had for their object the improvement of farming conditions. For many years the shows accomplished great good. Since, however, the exhibits have so often over-emphasised horse racing, balloon ascensions and in some cases even vaudeville shows, the decline of the fairs has been rapid. This retrograde movement has been the more insidious and difficult to prevent because, in the case of each fair it generally, at first, has not been apparent.

Probably the greatest change is noticeable in the character of the attendance. In the case of many fairs, instead of having the farmers and their families, who used to attend to see the stock, we now have young people, largely from the cities and towns, who are present to see the attractions and to bet on the races.

I do not think I can do better than quote the following extracts from a speech made by the very able president of Guelph Agricultural College, Dr. James Mills, on the occasion of the convention of agricultural fairs delegates at Toronto, with the observation that a similar convention held annually in the Territories would, in my opinion, be productive of much good. Dr. Mills is one of the greatest authorities on agricultural education, and his observations on the educational value of the local fair are worthy of every consideration.

I am put down to speak to you on fairs in their relation to education, or how fairs might be made of greater educational value. We are all in search of happiness in one form or another. We are apparently happy on different lines, and endeavour to accomplish our purpose in various ways, but the object of one and all is the same. We are all endeavouring to get what wealth we can in the hope that it will contribute to our happiness in some way or in some degree. So long as we live in these physical bodies we have to feed, clothe, house and care for them. These material things, classed under the head of wealth, must always

count as of considerable importance; they will always have a great deal to do with our happiness. Therefore the question of how to produce the greatest amount of wealth in any community is an important one among every civilised people. This is the problem of production in this and every other country, how a nation, a state, or a province can produce most wealth with given conditions as to resources, population and capital. That is the problem. I want you to see that this problem of production resolves itself into another problem. How can we improve the industrial qualities of the people? You take natural resources; they are a fixed quantity; you cannot improve your natural resources except by the application of labour. Now, as to capital, which is another essential of production. Capital can be obtained only by producing something and then saving. That is the way capital is accumulated, and the people that have the ability produce a large amount and the disposition to save will soon become wealthy, and will have all the power capital gives to a community. Capital can be accumulated only by labour, so that the whole question of increased production resolves itself into how to improve the quality of the labour of the community—how to make the people more skilful, progressive and successful workers. Everywhere the great factor is the man, whether in the management of the business or the farm; that counts for more than anything else. That involves then the whole question of education, general and technical; how to improve our people; how to make them more successful, more progressive and skilful workers—and especially education in its more practical forms.

I am glad to say that this country is rapidly coming round to the conviction that, after all, education should be determined in the long run by two things, function and environment. I think that the education that you give to a boy should be determined by these two things—What function or duties does he expect to perform in life, and, second, what his environment and surroundings will be—where is he going to live, and under what conditions? Education that goes straight ahead without stopping to consider what duties or functions the man will be called upon to perform in after life, or without stopping to consider what his surroundings will be is on the wrong line. There is a vast deal of knowledge that can be used to develop the mind, but while this process is going on we must take care to fit the man, so far as possible, for his duties and surroundings in after life.

Your exhibitions point in that direction. These fairs, if they have the educational value that they ought to have, will tend to fit our young people especially for the duties they have to perform, and for living happily and prosperously in the community. What is the educational value of your fairs—in your township and county fairs, and your larger fairs, east, west and centre? They will always have an educational force—a very great one on the young people, and the older people to some extent, too. The fair will affect their tastes and their morals, and it ought to affect their industrial qualities and make them better workers as grain growers or stock raisers, or in whatever direction they may work. There has been a growing conviction that the educational influences of many of our fairs have been on wrong lines; that latterly in too many places the directors, in their anxiety to make ends meet, have encouraged educational forces that tend rather to dissipation among the young people, if not a lowering of their tastes, and suggest things that are not desirable in a community. I am afraid that has been the case to some extent in our larger fairs, and also in not a few of our smaller ones. I believe you have set your faces to remedy this evil. The question is, how to do so. I want to see our fairs have a larger educational value. I believe our farmers have brains enough to give our fairs this value if they will set themselves to do it. I believe that the most important step in the accomplishment of this object is expert judging, including giving the reasons therefor. There is no doubt that this implies a highly competent man. For my own part I should hesitate to judge and give my reasons before the hard-headed farmers who meet at these shows—men who have been breeding and handling animals all their lives. But I think it is possible to produce such judges in this country; and one of the things that influenced us in starting the short course in judging at Guelph was that we might furnish this country with a fair supply of men competent to judge cattle, sheep and swine, and in the presence of intelligent men and women to give the reasons for their judgment. But with all we can do, either at the college or elsewhere, you will find that type of man very limited. You will find very few who can give the reasons. Often the men who are the best at practical work are the poorest at talking, and the men who can write by the yard and talk by the hour often show very poor practice at home. I suppose that is because a man cannot attend to everything. But when you get a man who is a good judge and a good speaker, and can state his reasons clearly and logically, you have a rare bird, and you will find the supply of that kind of men quite scarce, and I advise you to turn your best attention to the selection and preparation of such men.

The reasons should be stated in a tone of voice loud enough to be heard. To merely mumble your explanations in a low tone, that half the people cannot hear, counts for nothing. Do not talk merely to those who ask the questions, but speak to the people in the back seat also.

The next point is that, if you are going in for this sort of thing, you must make some provision for it at your fairs. At nearly every show of any importance there is a large central building of some kind. In connection with this building you might have a large room that would hold four or five hundred people. Or you might have an isolated building where animals could be brought in. Require your judges, say of horses, to bring in the first, second and third prize, state the reasons for the decisions and answer questions. Then you can bring in the cattle, sheep and swine and treat them in the same way. I would go a step further and compel the poultry judges to do the same thing, and see how many points they give for fancy feathers and how many for a valuable carcass. If the building is well lighted the work can be carried on at night. You will either have to adapt your present building or provide a suitable building for these lectures.

I think it is time you insisted that exhibitors who receive prizes should keep their prize card on the animal that receives it, and not mixed up with the cards they have received for the last ten years. It should be so placed that it will indicate to visitors which animal really got the prize. They are very particular about that in Scotland. There every animal is numbered, and the number is displayed plainly on the animal. These numbers all appear in the printed catalogue. If the prize card is removed before the show is over, the prize is taken away. The main point is to educate those who look on, and if these things are neglected everything of an educational value is lost.

The next point is to get the directors to feel that an important thing in an exhibition is its educational work. I have great confidence in our Canadian brain and talent, and in our Canadian farmers especially. If you put them to work on this line and get them impressed with the thought that this is the important thing, they will find ways of accomplishing it. You should feel that this is what your exhibition primarily exists for; not to help a few who own the articles that win the prizes, but the many who are looking on. The real object of all this is, as I have said, to make the people better workers; to make every boy and girl more skilful and progressive, or in other words, a better producer. Set your mind on the fact that the important thing in your exhibition is its educational value.

In the first place, if any marked improvement is to be accomplished in the management of our fairs a determined effort must be made to make them of real educational value. The educational possibilities should be developed to the greatest possible extent. If this means that the professional jockey, the rope walker, the contortionist and all other features not strictly required to admit of a contest in excellence of live stock and agricultural products must go, so much the worse for them, but to take the place of these attractions each department of the show should be perfected and made more interesting and instructive so as to command the attention of the public, for the fact cannot be disguised that, without a reasonable attendance, an exhibition is doomed to failure both financially and as an educational institution.

An intelligent consideration of market demands is a necessity on the part of fair managements, and the prize list should be so adjusted as to stimulate the production of any article or class of live stock that it pays the farmers best to produce. If good prices are likely to be paid for a number of years for military remounts, the prize money offered at fairs should be proportionately increased and special care should also be taken to properly describe the type or types required. The same idea can also be carried out in respect to roots, vegetables, cereals, etc.

The holding of athletic contests for the district championships has been tried with great success at fairs elsewhere. Only country and village boys are allowed to compete. Professionals are barred out or have to compete in a class by themselves. The events are generally the 100-yard dash and mile run, running, broad and high jumps and putting

the 16-pound shot. A time limit is set on the mile race. Points are offered for places in each event. The competitor scoring the most points is awarded the all round championship of the district. Handsome, but not necessarily costly cups and medals are offered as prizes to encourage the boys to compete.

Sports of this nature have been held for two years with great success by 13 county fairs of eastern Ontario and western Quebec. The fairs there have carried the contests a point farther. Each year they have held a final big field day of sports at which the champions from all the counties meet and compete for the championships of the entire district. These final contests create greater interest in the preliminary county contests. The newspapers, by writing about the sports, help to advertise the fairs. All the competitors bring crowds of supporters, whose entrance fees alone much more than pay for the cost of the prizes.

This idea of nonprofessional athletics could be carried out in a variety of ways at all fairs. It is something at present comparatively little practiced at agricultural exhibitions. The judges should, of course, be disinterested and competent men or women. This plan can be worked out to be of novel and intense interest to young and old of both sexes, and of far more value and a better drawing card for the fair treasury than any number of tiresome trotting races and more or less crooked flat races. These sports also have been found to have the effect of making farm boys more eager to attend the local fair and take an interest in its welfare.

Where professional racing and grand stand performances may be abolished various interesting attractions can be substituted in addition to those already mentioned. The judging of live stock, particularly riders and hunters, can be held in the afternoon in front of the grand stand. The animals are required to go over 3-foot hurdles and water jumps. These contests create great interest and tend to produce desirable types of horses. Jumping in the ring before the judges is one of the leading features of the agricultural shows in Great Britain.

Gymkahnas are held with great success by some western shows. These consist of various competitions on horseback, all of which could be restricted to country boys. The "broncho buster," or rider of unruly horses, and other cowboy feats are always attractive and instructive. Suitable prizes, preferably silver plate of winners' selection, may also be offered for the best lady equestrian, the best single or double turn-out, driving and riding competitions; in fact, there is scarcely a limit to the interesting and instructive and, at the same time, wholly legitimate special attractions that may be included in the programme of any well conducted fair. Excellent results have also been attained at many eastern and British shows, and at some Territorial fairs, by instituting ploughing matches and weight judging competitions with beef and cattle.

OFFICIAL LIVE STOCK JUDGING.

The system of supplying official judges to place the awards at the various Territorial exhibitions, which was inaugurated by this Department in 1899, is each year becoming more popular with the various boards of management of Territorial exhibitions. The numerous letters

now on file, from officers of agricultural societies, congratulating the Department on the choice of the judges sent out is ample evidence of the fact that this work is thoroughly appreciated.

It would appear that in the matter of judging at agricultural fairs we are considerably in advance of Great Britain. In a recent letter from W. A. McKinnon, Chief of the Dominion Agriculture Department Fruit Division, who was at the time attending British exhibitions, the following appears :

Particular enquiries about the standards adopted in judging stock at these shows failed to elicit a definite statement on this point. In fact the officials themselves were not any too clear as to what is or ought to be the standard. They appear to have fallen into the easy error of looking on the prize itself as being the end and goal of the exhibitor's ambition. On pressing the matter closely, certain officials admitted that too little attention was paid to either the educational value of the show or the cash result to the farmers at large. In the catalogues and prize lists judges are warned not to be influenced by the market value of stock in making their awards, and a high official stated that in his opinion too little attention was paid to the economic value of the exhibits, and the farmers are sometimes misled by awards to produce an article which is not remunerative.

In supplying the judges mentioned below material assistance was accorded by the Canadian Pacific Railway authorities in the way of supplying free transportation. The great benefit derived by the country through the placing of awards by expert judges only, which of necessity exercises a distinct influence in favour of a correct standard in the important classes of live stock, is fully realised by this company.

The gradual increase in the number of entries in the live stock classes at Territorial fairs made it necessary to supply two expert judges for the majority of the shows last year in the place of only one during previous years. During the past season experts appointed by the Department took charge of the judging in the horse, cattle, sheep and swine classes at the following points:

Moosomin, Indian Head, Regina, Moose Jaw, Lacombe and Fort Saskatchewan—John A. Turner, of Calgary; and Wm. Moodie of De Winton.

Okotoks—Wm. Moodie, De Winton.

Edmonton—Dr. Hugo Reid, Guelph, Ontario; and D. Anderson, Rugby, Ontario.

Maple Creek, Medicine Hat Innisfail, Pincher Creek and Lethbridge—Wm. Sharman, Souris, Manitoba; and S. W. Paisley, Lacombe.

Whitewood, Fairmede, Arcola and Carnduff—Jas. Churchill, V.S., Regina; and M. Geddes, Winnipeg.

Saltcoats and Churchbridge—W. W. Fraser, Emerson, Manitoba.

Yorkton—D. Anderson, Rugby, Ontario.

Calgary—Andrew Graham, Pomeroy, Manitoba; and S. R. Edwards, Indian Head.

Saskatoon and Rosthern—George Rankin.

In addition to the exhibitions named above judges were appointed to act at several other shows, which were postponed on account of the heavy rains prevalent during the season of the summer fairs.

A glance at the list of fairs that were supplied with judges will at once show that, in spite of the efforts of the Department to get the exhibitions arranged so as to call for the least possible amount of travelling and loss of time on the part of the judges, they frequently had to be sent long distances to act at a single fair and often wait three or four days between two shows. Last year a letter was sent to all agricultural

societies setting forth the difficulties in the way of supplying expert judges when fair dates were set by the local societies without regard whatever to the dates of adjoining shows. The societies were asked to leave the setting of the fair dates to the Department and to say whether they desired to hold a summer or fall fair, and about what date would be the most suitable. Nearly all the societies saw the necessity of such a course and expressed their willingness to comply with the request of the Department. Several of the societies supplied the necessary information promptly, but I regret to state that some did not comply, although they were frequently urged to do so, until it was exceedingly late in the season. This negligence delayed the setting of dates to such an extent that three or four societies were forced to set their own dates and run chances of being supplied with official judges, which had the effect of seriously disturbing the arrangements the Department was endeavouring to make. Requests for the Department to set the dates of shows and supply judges were received as late as July 7th. This, of course, seriously interfered with the efficiency of the work of supplying expert judges, not only increasing the expense of the undertaking and decreasing the number of fairs at which official judges could act, but also duplicating the transportation requirements.

The argument may be advanced that only those societies which comply with the requirements of the Department should be furnished with judges. Theoretically this argument is sound and would doubtless very much facilitate the Departmental end of the undertaking, but—in view of the utter uselessness of an agricultural fair run on the principle of the judging being performed by any person who happens to be around, which unfortunately was too prevalent before the Department dealt actively with the problem, to make this position quite unassailable,—not alone should the official judges be withdrawn from such fairs but also the government grant which they would have been entitled to. If our fairs are supposed to serve an educational end, and this is presumably the only justification for the payment of public funds in aid of them, it certainly behooves the Department to satisfy itself that the educational value of each show is preserved and developed to the utmost extent, and the very foundation and basis of such development is to place the work of judging in all departments in none but expert hands. Furthermore, if the desire of the Department is to take charge of the judging at all fairs it would be manifestly absurd to rest content with serving half of them when the expenses attendant upon such an undertaking would be quite as large as if every fair in the country were supplied. There are about forty-five agricultural societies and exhibition companies in the Territories. In setting the dates of these every effort is made to have all summer or fall fairs held in sequence so as to allow of one or two judges, as the case may be, acting at all exhibitions in one portion of the country without loss of time or long distance travelling. For the purpose of arranging convenient series of fairs the Territories have been divided up into several districts in each of which there are about eight fairs that could be arranged consecutively. Out of that number the Department may probably have heard from four or five by the time it is necessary that the fair dates should be set. Two of these may desire to have summer fairs and the balance wish to hold fall shows. It will readily be seen that to supply official judges in such cases it might be necessary to bring men a considerable distance to act at no



LACOMBE SHORTHORNS EN ROUTE TO CALGARY SALE.

more than from one to three exhibitions, with the result that the cost per exhibition of supplying judges to those societies only that advise the Department in good time respecting the date of their shows would be out of all proportion to the value of the services rendered.

In view of the difficulties experienced in arranging the dates of shows by correspondence since the work of supplying official live stock judges was undertaken, I would strongly recommend that each society should be asked to elect a delegate and give him full authority to set the date for the next fair. Conventions should then be held early in the year at convenient points where a representative from this Department could be present and arrange for the dates of all summer and fall shows. By thus bringing the representatives of the various societies together it would probably be possible to arrange to have two or more series of shows take place so as to allow of the same judges acting without loss of time. The railway fares of the delegates might be paid by the Department and the living and incidental expenses by societies interested. Such annual convention would, in my opinion, largely overcome the difficulties experienced in setting dates of shows and render it possible for the Department to supply all exhibitions with judges at practically the same expenditure as is now involved in furnishing official judges for not more than two-thirds of the Territorial shows.

The Department is under deep obligation to the Dominion Live Stock Commissioner's office for placing at our disposal Messrs. Reed and Anderson, who acquitted themselves in a most creditable manner at the various shows they attended.

The usual agricultural societies' statistics for the past year will be found on the following page.

AGRICULTURAL SOCIETIES 1902.

NAME.	Institute.			EXHIBITION STATEMENT					FINANCIAL STATEMENT.									
	No. of members	No. of meetings	Total attendance	Date of exhibition	Paid in prizes for sports, etc.	Paid in prizes	Number of entries	On hand from 1901	Exhibition grant	Membership grant	Miscellaneous receipts	Total receipts	Total expenditure	Balance on hand	Assets	Liabilities		
Alameda	43	2	100	Oct 1	\$	\$	620	76 07		61 00	134 30	538 50	127 70	109 37	114 37	6 00		
Broadview & Whitewood	116	40	41	Oct. 8	10 00	179 00	124	64 30	314 20	90 00	191 75	538 50	127 00	411 50	458 50	614 25		
Battle River	96	2	41	Aug. 5-6	779 25	1,008 75	1,426		555 25	61 00	3,259 45	3,814 70	230 99	67 14	1,567 14			
Central Assa.	81	41	111	Oct. 2-3	20 00	425 25	478	89 44		54 00	204 00	268 00	279 11	68 27	314 27	200 41		
Central Sask.	106	1	1	Sept. 16		181 50	279			50 00	224 00	274 00	204 12	9 88	1,754 28	60 80		
Carrut River	101	2	111	Sept. 24		154 36	180	285 91			83 00	274 00	274 00	90 40				
Duck Lake	63			July 1-3	2,015 10	1,377 00	538		1,000 00		6,713 75	7,113 75	6,126 01	274 11	23,466 65	17,233 33		
Edmonton In. Ex. Ass'n.	114	43	100	Aug. 13-14	280 06	251 50	375	163 95		58 00	102 56	550 56	656 06	58 45	2,038 45	10 00		
ft. Saskatchewan	133	28	70	Oct. 3		386 50	478	203 97		107 00	185 86	293 86	167 89	130 83	760 83	100 00		
Farmede.	163	3	70	Sept. 31		213 15	371	100 02	184 55	66 00	382 00	402 70	344 71	127 14	777 89	13 25		
Gainsborough.	164	3	174	Sept. 1-4	2,283 63	1,582 00	666	98 95	1,000 00	150 00	5,548 35	6,548 35	8,924 09	10 58	183 00	1,486 43		
Inter. West. Pac. Ex. Co.	127	2	130	Oct. 3		339 00	495	318 18	461 95	99 00	166 55	265 55	491 66	163 59	847 33	270 00		
Indian Head	130	3	75	Oct. 3		339 00	380	247 54		106 00	167 80	265 55	491 66	21 43	831 43	401 25		
Innisfail.	71	1	83	Aug. 5		550 00	108			54 00	68 25	123 25	123 25	19 12	2,678 69	336 16		
Lorne	126	3	40	Sept. 21		321 50	351	141 06	269 45	106 00	673 80	1,079 25	1,217 63	2 68	3,002 68	849 00		
L. Cut Arm and Qu'App.	83	6	340	Aug. 7-8	368 50	416 00	469	7 95	293 45	66 00	1,254 48	1,330 48	1,325 68	2 75	1,902 75	800 00		
Lethbridge and Dist.	116	5	123	Aug. 9-10	1,131 60	244 00	162	3 49	293 45	150 00	1,614 75	1,968 20	1,967 02	4 67	3,000 00	330 00		
Macleod and Dist.	148	2	120	Sept. 26-27	129 00	477 50	463	55 15	135 55	150 00	554 95	840 60	732 91	27 19	627 19	55 00		
Maple Creek	247	4	120	Oct. 6	27 00	631 00	686	483 47	269 00	150 00	679 70	1,038 70	703 93	728 24	773 24	92 75		
Moore Mountain.	154	2	45	Sept. 31, Oct. 3		589 22	426		362 60	57 00	566 87	929 47	427 07		643 42	322 61		
Moine Mountain.	161	1	100	Aug. 6		255 25	509	35 98		146 00	194 05	251 05	427 07		140 04	140 04		
Medicine Hat.	83	3	100	Aug. 8		448 00	618	25 45		146 00	383 35	539 35	566 65	80 50	1,200 00	443 85		
Moose Jaw.	230	2	240	Oct. 2		239 75	308	34 75		54 00	64 30	118 30	72 55	331 02	331 02	148 00		
Mosomin.	71	1	2	Oct. 8		166 25	303	208 46		108 00	297 10	405 10	600 31	13 25	409 33	174 25		
Glads.	142	2	16	Oct. 3		387 50	294	224 99	226 00	118 00	225 25	353 80	570 21	224 03	409 33	174 25		
Pheasant Forks.	26	2	16	Oct. 9-10		421 20	392	208 82		150 00	225 25	278 12	420 57	366 37	1,085 39	635 02		
Pincher Creek.	74	2	55	Aug. 7-8	627 65	903 00	467	380 65	559 57	150 00	256 31	2,816 18	3,174 49	152 34	1,793 83	226 70		
Regina.	313	4	175	Oct. 7		421 20	392			72 00	354 00	426 00	476 00	130 28	25 00	50 00		
Roshering and Hague	115	3	195	Sept. 30		491 50	620	58 94	200 38	150 00	374 14	724 52	814 98	130 28	1,130 28	71 40		
Sterling.	154	3	195	Oct. 8		110 30	528	187 07	59 00	53 00	192 75	433 45	620 49	63	155 03	83 97		
S. Sask.	50	2	40	Oct. 7		508 00	339	100 85	187 70	157 00	140 30	273 30	337 65	36 50	36 50	355 41		
Sheep Ck. and Davisburg.	140	2	50	Oct. 8		246 00	339	100 85	187 70	133 00	140 30	273 30	337 65	36 50	36 50	355 41		
S. E. Assa.	212	2	60	Aug. 8-9		643 00	1,011	22 63		150 00	370 75	729 75	618 95	110 81	335 81	608 17		
S. Qu'Appelle.	152	2	80	Aug. 12		272 75	315	22 63		125 00	150 00	1,955 65	1,685 35	33 10	1,873 25	608 17		
S. Edmonton.	179	3	140	Oct. 13		256 75	297	238 02		120 00	179 00	299 00	294 10	206 62	530 00	33 61		
Wapella.	83	3	105	Nil						74 00	188 70	262 70	294 10	206 62	206 62			
Wetaskiwin	55	2	40	Nil						99 00	668 00	767 00	736 15	44 85	1,744 85	594 45		
Woleseley.	44	2	40	Nil							55 00	75 00	108 40	43 88	1,099 98	1,453 22		
Whitewood	142	2	85	July 15-17	904 00	692 00	501	352 58	846 60	150 00	3,940 56	4,937 16	5,117 93	15 85	7,856 81	3,707 87		
Yorkton.																		
1902	4,928	91	3,316		8,503 29	16,707 93	16,029	6,412 78	6,805 55	3,829 00	37,148 48	47,633 13	51,004 57	3,902 62	3,902 62			
1901	4,588	108	5,071		7,954 42	15,766 32	14,327	983 77	7,205 87	2,989 00	39,217 61	50,432 38	54,274 45	6,027 34	6,027 34			
1900.	4,216	47	799			14,538 58	9,836	3,801 72	13,122 70	7,238 33	19,624 29	39,985 32	39,694 02	7,917 35	7,917 35			

VI.—COLONISATION.

Figures are often more eloquent than words and, after presenting the statistical tables below, I feel that comment is almost superfluous. The most significant statistics are those relating to homestead entries, which show a most marvellous increase. The eyes of the world are undoubtedly upon the Canadian North-West and the problem of the next few years will be to care for the immigrants coming in rather than to induce immigration.

OFFICIAL HANDBOOK.

An enormous number of enquiries are received in the Department from time to time and much clerical work is saved by having available a handbook giving reliable information respecting the Territories. The official handbook issued two years ago filled a distinct want in this direction and, as the edition is now almost exhausted, I would submit for your consideration the advisability of arranging for a new and revised issue.

IMMIGRATION Statistics—North-West Territories.

Y'r	Jan.	Feb.	Mar.	Apr'l	May	June	July	Aug	Sept.	Oct.	Nov.	Dec	Tot'l
1898	133	166	1,042	1,702	1,129	1,124	809	308	349	228	300	173	7,463
1899	2,624	2,506	1,348	2,729	2,520	633	523	357	450	514	375	196	14,775
1900	151	240	2,415	4,115	2,205	2,807	1,297	995	645	795	422	163	15,750
1901	171	427	2,669	2,915	2,316	2,370	994	2,402	1,101	1,151	1,262	732	18,510
1902	642	866	4,056	5,296	4,183	3,755	2,217	2,719	2,332	3,531	2,823	1195	33,615

HOMESTEAD Entries--North-West Territories.

AGENCY	1898	1899	1900	1901	1902
Alameda	177	507	792	658	3,381
Yorkton	165	397	514	470	2,372
Prince Albert	143	513	359	601	1,637
Battleford .....	..	8	4	18	487
Regina	475	888	985	1,318	4,129
Lethbridge	195	286	347	605	1,269
Edmonton	623	936	1,309	1,699	2,733
Red Deer	108	637	785	890	1,331
Calgary	123	262	679	939	1,707
The Territories	2,009	4,334	5,774	7,195	19,046

DEPARTMENT OF AGRICULTURE

SALE and Grant of Lands--North-West Territories.

	1898	1899	1900	1901	1902
Dominion Government Sales.....	Unk'wn	24,500	46,000	74,169	96,208
Canadian Pacific Railway sales.....	174,493	237,068	313,558	309,857	2,145,027
Acquired under homestead regulations	321,440	693,440	923,840	1,151,200	3,047,360
Total		955,008	1,283,398	1,535,226	5,288,595

STATEMENT of Land Sales in Manitoba and the Territories by Railway Companies and by the Hudsons Bay Co.

	Hudsons Bay Co.		C. P. R. Co.		M. & S. W. R. Co.		Qu'Ap L.L. & Sas.		Calg. & Edm. R.		Total.	
	Acres	Amount	Acres	Amount	Acres	Amount	Acres	Amount	Acres	Amount	Acres	Amount
1893	.....	.....	93,184	\$ 295,288	14,164	\$ 57,559	1,603	not given	11,260	not given	120,211	\$ 352,847
1894	7,526	\$ 48,225	43,155	131,628	6,312	28,003	640	not given	11,035	not given	68,668	207,856
1895	4,431	23,209	55,453	176,950	5,623	22,330	2,391	not given	46,815	not given	114,713	222,489
1896	9,299	52,410	66,624	220,360	21,254	88,568	286	not given	10,553	not given	108,016	361,338
1897	10,784	52,277	135,681	431,095	63,800	234,644	2,524	not given	9,436	not given	222,225	719,016
1898	62,000	310,000	242,135	757,792	106,473	363,982	22,534	not given	15,481	not given	448,621	1,431,774
1899	56,875	274,625	261,831	814,857	58,019	199,458	61,030	\$ 178,517	24,738	\$ 53,335	462,494	1,520,792
1900	70,196	352,631	379,091	1,152,836	133,507	437,449	18,932	53,974	46,453	128,256	648,379	2,145,146
1901	82,305	399,804	339,985	1,046,665	59,749	214,953	22,266	74,810	116,719	352,037	621,027	2,088,269
1902	260,577	1,412,332	2,362,478	7,440,500	206,411	713,365	39,835	147,365	323,494	1,033,396	3,201,795	10,746,958

VII.—MISCELLANEOUS SERVICES.**GAME PROTECTION.***Report of the Chief Game Guardian.*

Five resignations of guardians were received and eight appointments were made during the year, making the number, exclusive of the North-West Mounted Police, 166, who voluntarily perform this service.

The number of licences issued for the past season was nineteen. Acting on information from guardians I investigated some reports that the law in respect to this was not being complied with, but failed to find the necessary evidence to convict. There is much dissatisfaction expressed over the actions of wandering bands of Indians, as will be seen by the following extracts from letters. A game guardian in Southern Alberta writes:

I have great trouble with the Stony Indians who have an idea they are a privileged class and who are allowed to wander around at their own sweet will. They destroy more game in a week than all the sportsmen will in a season. The game laws are not and cannot be enforced while those people are allowed to leave the reserve on every flimsy pretext. A great number of moose came into this district lately, I presume the fires on the coast and to the north have driven them. The Stonies and Kootenays are and have been killing large numbers on the Flathead and in the adjoining country. A Kootenay Indian is reported to have killed no less than seven in one day lately.

From north of Calgary another guardian writes:

The Stony Indians come around here every year to kill the few deer there are here and sell or trade the meat. I go to an Indian camp and find that six deer have been killed and a man and his wife are in the camp. To my charge that he has more than his limit he says that his wife killed three. If each man, woman and child is allowed three deer I guess the Stonies do not kill more than their limit. They not only hunt in season but out of season and seem to be off their reserve whenever they like. It is freely stated that the Indian Department encourages them to leave for that purpose.

In the press the matter is also frequently referred to in a similar way. Some wandering bands of Stonies and Saulteaux give much reason for complaint in the Battle River country. It is stated that some of these latter are still exempt from action under the Ordinance. While some bands remain free to shoot when they please it will be almost impossible to convict any Indian for killing game out of season. A direct complaint was made against Indians and Halfbreeds who were slaughtering deer and antelope to the north of Lumsden in the beginning of December, which was referred to the North-West Mounted Police for investigation.

I am pleased to be able to state that information has lately been received from the Indian Commissioner to the effect that a proclamation would be issued bringing the remainder of the Indian tribes under the operation of The Game Ordinance.

Having noticed reports in some of the newspapers of shooting matches between chosen sides where points were allowed for all manner of birds and beasts killed on a fixed day, which could by any stretch of the imagination be termed game, I would direct the attention of game guardians to the advisability of closely scrutinising such proceedings.

The conditions have been favourable for the breeding of waterfowl during the past season, but wet weather proved disastrous to the hatching of chickens in Eastern Assiniboia.

I append herewith a list of the game birds found in the Territories, the nomenclature being as in Macoun's catalogue from which most of the information is derived. I may say, however, that additions have been made at the instance of F. Diffir, of Calgary, Dr. George of Innisfail and G. C. Harvey, of Indian Head, all of whom are close observers of bird life.

A supply of posters, embodying concisely the principal provisions of The Game Ordinance was procured and each game guardian, as well as the Mounted Police authorities, was furnished with a number of copies to be placed in conspicuous positions for the information of the public generally.

GAME Birds of the North-West Territories.

American merganser...	Merganser Americanus	Fairly common. Breeds
Redbreasted " "	" serrator....	Breeds in northern wooded regions.
Hooded " "	Lophodytes cucullatus	Breeds.
Mallard	Anas boschas	Most abundant duck in N. W. T. Breeds.
Gadwall, gray duck. ...	Chaulelasmus strepera.	Common on southern prairies. Breeds.
American widgeon, bald-pate	Mareca Americana....	Common on southern prairies. Breeds.
Greenwinged teal	Nettion Carolinensis .	Common on southern prairies. Breeds.
Bluewinged teal.	Querquedula discors....	Common on southern prairies. Breeds.
Cinnamon teal.....	" cyanoptera	Rare.
Shoveller, spoonbill....	Spatula clypeata	Common. Breeds.
Pintail, springtail.....	Dafla acuta	Common. Breeds.
Wood duck.....	Aix sponsa.....	Very rare.
Redhead, pochard.	Aythya Americana....	Common. Breeds.
Canvas back duck.....	" vallisneria.	Common. Breeds.
American scaup duck, big black-head	" marila	Uncommon on prairie. Breeds in north.
Lesser scaup duck, blue-bill.....	" affinis	Uncommon. Breeds.
Ring-necked duck.....	" collaris	Breeds north of Manitoba
American golden-eye whistler	Clangula Clangula Am- ericana	Not uncommon in wooded regions. Breeds.
Barrow's golden-eye...	Clangula islandica....	A few were seen near the Rockies.
Buffle-head, Spirit duck	Charitonetta albeola..	Uncommon but breeds.
Harlequin duck.....	Histrionicus histrioni- cus.....	Uncommon but found breed- ing along mountain streams.
King eider.	Somateria spectabilis..	Rare. One bird killed in Bow River 1894.
White-winged scoter...	Oidemia deglandi.....	Common. Breeds.
Ruddy duck.....	Erismatura Jamaicensis	Common. Breeds.
Lesser snow goose.....	Chen hyperborea	Occasional. One specimen shot at Calgary, spring, 1893
Greater snow goose....	Chen hyperborea nivalis	Common migrant.
Blue goose.....	Chen caerulescens.....	A transient visitor.
Ross's snowy goose...	Chen rossii.	
American white-fronted goose. Laughing goose.....	Anser albifrons gambeli	Seen while migrating.
Canada goose.....	Branta Canadensis....	Breeds throughout the Terri- tories.
Hutchin's goose.....	Branta Canadensis hutchinsii	Rarely breeds.
Whistling swan.....	Olor Columbianus....	Migrant,

GAME Birds of the North-West Territories.—*Continued.*

Trumpeter swan.....	Olor buccinator.....	Breeds occasionally about prairie lakes.
Whooping crane	Grus Americana.....	Breeds in northern parts.
Little brown crane, "Sandhill crane"	Grus Canadensis	Distribution uncertain. Breeds in Red Deer district.
Sandhill crane.....	Grus Mexicana	Distribution uncertain. Breeds in Red Deer district.
Carolina rail. Sora . . .	Porzana Carolina . . .	Common. Breeding throughout the Territories.
Yellow rail.....	Porzana noveboracensis	
American coot. Mud- hen.	Fulica Americana....	Common. Breeds.
Red phalarope.....	Crymophilus fulcarius	Has been seen at Old Wives Lake.
Northern phalarope . .	Phalaropus lobatus....	Not uncommon.
Wilson's phalarope. . .	Steganopus tricolor....	Common. Breeds by marshy ponds.
American avocet.....	Recurvirostra Ameri- cana.....	Common. Breeds.
Wilson's snipe.....	Gallinago delicata . .	Breeds throughout the Territories.
Long-billed dowitcher.	Macrorhamphus scolop- aceus	Abundant on prairies in August.
Stilt sandpiper	Micropalama himantop- us	Uncommon.
Knot. Grey-back. Robin snipe	Tringa canutus	Rare migrant.
Pectoral sandpiper Jack-snipe	Tringa maculata.....	Uncommon.
White - rumped sand- piper.	Tringa fuscicollis. . . .	A few breed.
Baird's sand piper . . .	Tringa bairdii	Common migrant.
Least sandpiper	Tringa minutilla	Common migrant. Probably breeds.
Semipalmated sand- piper	Ereunetes pusillus . . .	
Sanderling	Calidris arenaria	Migrant.
Marbled godwit	Limosa fedoa	Summer resident.
Hudsonian godwit.....	Limosa hamastica....	Rare.
Greater yellow-legs....	Totanus melanoleucus	Not common but breeds in foothills and north.
Lesser yellow-legs . . .	Totanus flavipes.....	Common migrant.
Solitary sandpiper.....	Helodromas solitarius..	Not common but breeds.
Green sandpiper	Helodromas ochropus..	One specimen from N. W. T. in British museum.
Western Willet	Symphemia semipalm- ata inoranta.....	Common. Breeds.
Bartramian sandpiper..	Bartramia longicauda..	Summer resident. Breeds.
Spotted sandpiper.....	Actitis macularia....	Breeds throughout the prairies.
Long-billed curlew . . .	Numenius longirostris	Common in Assiniboia and Alberta.
Black-bellied plover....	Charadrius aquatarola	A spring migrant.
American golden plover	Charadrius dominicus..	Migrant in May and August.
Killdeer plover.	Ægialitis vocifera....	Breeds abundantly.
Semipalmated plover...	Ægialitis semipalmata	Common migrant but breeds sparingly.
Belted piping plover....	Ægialitis meloda cir- cumcincta	Breeds in Assiniboia.
Richardson's grouse....	Dendragapus obscurus Richardsonii	In the foothills of the Rockies.
Canada grouse.....	Canachites Canadensis..	In spruce forests.
Franklin's grouse.....	Canachites Franklinii..	In the foothills and Rockies.
Ruffed grouse. "Part- ridge"	Bonasa umbellus	Common resident in woods.
Canadian ruffed grouse	Bonasa umbellus togata	In spruce woods. Distribu- tion uncertain.
Gray ruffed grouse....	Bonasa umbellus umbel- loides	In aspen woods. Distribution uncertain.
Willow ptarmigan.....	Lagopus lagopus	Rare but found in northern spruce woods.

GAME Birds of the North-West Territories.—*Continued.*

White-tailed ptarmigan	<i>Logapus leucurus</i>	Specimens have been taken near Banff.
Prairie hen, pinnated grouse.....	<i>Tympanuchus Americanus</i>	Has been killed at Indian Head
Sharp-tailed grouse	<i>Pediocætes phasianellus</i>	Throughout the wooded districts,
Columbian sharp-tailed grouse.....	<i>Pediocætes phasianellus Columbianus</i>	Abundant throughout the Territories.
Prairie sharp-tailed grouse.....	<i>Pediocætes phasianellus campestris</i>	Said to be a permanent resident of our prairies by E. Coulbeaux.
Sage grouse	<i>Centrocercus urophasianus</i>	South of Wood Mountain and Cypress Hills.

PRAIRIE AND FOREST FIRES.

Six additional fire guardians were appointed during the past year, which makes the number of those who voluntarily perform this service 212. As usual very effective work was done in this direction by the members of the North-West Mounted Police Force, and most of the information here given is gleaned from their reports.

Some serious fires occurred during the fall. One in particular did a great amount of damage about the 25th September in the neighbourhood of Estevan. Crops, hay, buildings and horses were destroyed, several men being badly burned and fatally injured, the fire being continuous to Weyburn. Through investigations made by the police a woman was fined for starting a fire to the north-east of Yellowgrass by throwing out ashes from her stove. A few days previous to the fires above mentioned, one came from across the international boundary south of Estevan. In the district south of Moose Mountain complaints have been made of fires being frequently started from railway engines. In the country south of Saskatoon a fire started on the 8th October which proved very destructive, one settler losing his buildings and crop, while several lost grain and hay stacks. A large number of settlers in the burned districts are new comers and the loss will fall heavily on them. Numerous other fires occurred in various districts, details of which are not to hand. The importance of good fire guards is not realised by the majority of farmers until a scorching awakens them to a sense of their folly.

Arrangements were entered into during the year between the Canadian Pacific Railway Company and the Territorial Department of Public Works by which the latter undertook the construction of fire guards along the right of way. Doubtless this phase of the subject will be fully dealt with in the report of the Deputy Commissioner of Public Works.

VIII.—PUBLIC HEALTH.

OUTBREAKS OF INFECTIOUS AND CONTAGIOUS DISEASES.

Early in July a number of complaints were made to the Department respecting the continued prevalence of a virulent form of diphtheria in the German settlements contiguous to and east of Regina, more particularly in the Arat settlement. The attention of the North-West Mounted Police was called to this matter, and an investigation was made in due course. A report was subsequently submitted to the Department which indicated a rather serious state of affairs. No fewer than twenty-five deaths had occurred from the 1st of May until the middle of July, and the disease was still raging. Considerable difficulty was experienced by the police authorities during their investigations, owing to the reluctance of the settlers in the district to give information regarding the matter, for fear of quarantine regulations being imposed upon them. A quarantine of the whole district was immediately established and a police patrol organised. On the 9th October Dr. Low, of Regina, was appointed health officer and Constable Gordon T. Howden, sanitary inspector, with jurisdiction in the district quarantined, viz., townships 18, 19 and 20, ranges 16, 17 and 18, west 2nd Meridian. As the threshing season approached extra vigilance became necessary in order to prevent the disease spreading amongst the community through the medium of threshing gangs.

Towards the end of April telegrams were received reporting outbreaks of scarletina and diphtheria in the districts of Rosthern, Duck Lake and Saskatoon. The police and immigration departments were notified, by whom all necessary precautions were taken towards the eradication of the diseases. In the early part of April outbreaks of diphtheria were reported to exist in the districts adjacent to Fort Saskatchewan, Edmonton, Duhamel and Leduc. The necessary quarantine was established and every precaution taken. Several deaths occurred.

On the 17th May a report was received from the police authorities to the effect that diphtheria was prevalent amongst certain Roumanian Jewish immigrants recently arrived at Qu'Appelle. The majority of these people, numbering about 150, were at the time quarantined in the immigration sheds at Qu'Appelle, the others having been sent to the district north of Fort Qu'Appelle some days before. In all, fifteen cases occurred and two of the patients died.

A few cases of diphtheria and measles made their appearance in the Innisfail country, but no serious results arose. Some three or four deaths were reported to have occurred during an outbreak at Moosomin, during the months of June and July. A report came to hand from Maple Creek of what was taken to be a virulent type of diphtheria, one or two deaths having occurred. Outbreaks of scarlet fever, measles and diphtheria made their appearance in the Olds district during the month of March. The diseases in the town were attributed to unsanitary conditions and the influx of immigrants. A few deaths were reported. Dr. McFarlane acted as health officer.

From Okotoks a report came to hand that diphtheria had made its appearance in the village. The provisions of The Public Health Ordinance, with respect to cases of this nature, were explained to the village authorities and the matter was also referred to the police authorities. One death resulted. A report was received of several cases existing at Pilot Butte. Three cases were reported from the Red Deer District.

In April the C.P.R. dining hall and commercial telegraph office at Swift Current were placed under quarantine for diphtheria. Nothing serious resulted from the outbreak at this point, probably owing to the early action on the part of the medical authorities.

A report from the police authorities showed that a serious case of diphtheria occurred at Wolseley with fatal results. A report of measles was received from the Prince Albert district. The attention of the town authorities was called to the necessity for preserving a rigid quarantine. Quarantine for measles was also enforced on John Smith's Reserve, near Prince Albert. A report was also made that the disease existed in the Duck Lake district. Measles of a mild type broke out in the halfbreed settlement, File Hills, during the early spring.

In May twenty-one Ruthenians from Austria were placed in quarantine in the agricultural hall, Grenfell. Upon enquiry it transpired that this was apparently a case where the infection owed its origin to the steamer. Just sufficient time elapsed between the time of leaving the boat and arriving at destination for the disease to develop. One child died almost immediately after arrival. Six deaths occurred in all.

In June eleven children died in the vicinity of Kaposvar from measles. Medical opinion in this case was that the deaths were chiefly due, not to the disease itself, but to the insufficient care and nursing of those who were recovering. A small party of Galicians, bound for the colony near Yorkton, also contracted measles on the train from Halifax. One child died.

In February nine deaths were reported to have occurred in the German colony near Balgonie, from what appeared to be a mild type of scarletina. On enquiry it was found that the fatalities were due mainly to the carelessness of patients when in the stage of recovery. In October a case of scarlet fever was reported to exist in Broadview. No time was allowed for the disease to gain ground. One child died. A few mild cases also occurred in Saltoun in April. In January some mild cases of scarletina were reported from Milestone. An effective quarantine was at once established. A number of outbreaks were also reported among the Icelanders near Tantallon. In March a case occurred in a railway car on the Soo line, north of the international boundary. The car in question was placed under quarantine.

From time to time during the year cases of scarlet fever were reported from different points in the country adjacent to Battleford, Kinistino and Prince Albert. In each instance the attention of the police authorities was directed to the matter and, prompt quarantine being established, no serious results ensued. In May the immigration hall at Strathcona was placed under quarantine owing to a few cases of scarlet fever, of a malignant type, and measles, having broken out there. In August two cases of scarlet fever and one of measles made their appearance in the Wostock district north of Edmonton.

The number of medical practitioners in the Territories has increased from 114 at the close of 1901 to 135 at the present time,

SMALLPOX EPIDEMIC.

Smallpox still continues to give trouble. The work of dealing with this disease continues under the direction of Dr. James Patterson, under the instructions of the Director General of Public Health, Ottawa. I attach Dr. Patterson's report, which fully covers the ground under this head.

Report of Dr. Jas. Patterson, Dominion Quarantine Officer.

I have to report that during the past year smallpox appeared at a very considerable number of points in the Territories. In all of these outbreaks, with two exceptions, the quarantine established by the North-west Mounted Police confined the cases to the individuals or families first affected. Ninety per cent. of those who have had it were natives of the Territories — half-breeds. I have not heard of a single case amongst the Mennonites, Galicians, or Doukhobors.

The type of the disease now existing is more severe than that of a year ago; but yet not fatal. The mortality has been small.

In a very large number of the localised outbreaks the infection was introduced from south of the international line by wandering individuals, or bands of halfbreeds or Indians, who frequently cross and recross the boundary without reporting to customs or other officials. In a few cases it was brought in by English speaking immigrants who, though infected, passed inspection during the period of incubation of the disease when it is impossible for anyone to detect it.

The Dominion Government continues the free distribution of vaccine to all who ask for it and use it. Unfortunately a very considerable number of people are careless or sceptical as to the protection conveyed by successful vaccination; even the more intelligent classes do not re-vaccinate as they should do until immunity is secured.

The impression is commonly held that because the disease is called smallpox therefore in all cases when it occurs the government has to supply medical attendance and maintenance. This is erroneous. When people are not in indigent circumstances they must bear the cost just as they do in cases of scarlet fever or diphtheria, which are more serious and fatal affections than the present type of smallpox.

I have much pleasure in certifying to the continued efficiency and value of the North-West Mounted Police in maintaining quarantine and acting as supply agents for those quarantined.

DISTRICTS in which Outbreaks of Smallpox Occurred during year 1902.

Battleford, Bresaylor, Eagle Hills, Onion Lake.	Grenfell, Wolseley.
Batoche, Duck Lake, Rosthern, Wingard, Belle Vue.	Lethbridge (town and district.)
Calgary, Cochrane (Indian Industrial School), Blackfoot.	Moosomin, Moose Mountain, railway camp at Scissors Creek.
Reserve near Gleichen.	Hazelcliffe, Fleming, Ferndale, Cailmount, Qu'Appelle Valley (north of Moosomin.)
Cardston (in halfbreed camp, close to town).	McLeod District, Stand Off, upper end Blood Reserve.
Cottonwood.	Maple Creek district.
Crane Lake.	Medicine Hat district, Josephsburg, Elkwater.
Coalfields, Estevan, Roche Percee, Meridian, Milestone, Weyburn.	Medicine Lodge,
North Portal.	Moose Jaw district.

Edmondson District.	Oxbow.
Erwood (railway camps.)	Ponoka and district.
Qu'Appelle and Fort Qu'Appelle, Lebre	Prince Albert, Snake Plains, Rosthern,
(Industrial School.)	Melfort, Kinistino,
Katepwe (Indian Reserve, File Hills),	Glen Mary.
Balcarres, Indian Head.	Wood Mountain and Willow Bunch.
Kenlis, Sintaluta.	Yorkton Fort Pelly (Indian Reserve).

PUBLIC HEALTH BULLETIN.

On account of the many more or less serious outbreaks of infectious disease which were occurring, and of the large number of immigrants of all nationalities arriving in the country, it became evident to the Department that steps should be taken to give the greatest possible publicity to the provisions of The Public Health Ordinance of the Territories in so far as these affected the duties of the public. Accordingly, Departmental Bulletin No. 5, entitled "The duties of the Public in Respect to Infectious and Contagious Diseases," was prepared. This bulletin embodies the principal provisions of the Ordinance as well as directions for vaccination, quarantine and disinfection, expressed as far as possible in popular language. 10,000 copies of the bulletin were printed in English, 7,000 in Swedish, 10,000 in German and 10,000 in French. These were supplied to all medical practitioners, the officers commanding Mounted Police posts, and others throughout the Territories and copies may be had by anyone who desires them upon application to the Department. The English edition is now nearly exhausted and a fresh supply will be required at an early date.

The bulletin also served another useful purpose. Under section 5 of The Public Health Ordinance, physicians attending cases of infectious or contagious disease are required to hand to the occupant or owner of the house in which such disease exists "full written instructions" as to quarantine precautions.

It having appeared to the Department that this requirement of the law was not being fully complied with by all medical practitioners the following circular was sent out upon the issue of the bulletin:

Section 5 of the Public Health Ordinance requires *inter alia* that when you attend cases of infectious or contagious disease you are to hand to the occupant or owner of the house in which the disease exists *full written instructions* as to quarantine precautions.

A bulletin embodying the provisions of the Ordinance as far as it relates to the duties of the public in respect to the class of diseases above referred to has been prepared by the Department, and I am sending you, under separate cover, a supply of the same in different languages. The Department will accept this bulletin as being the "full written instructions" called for by section 5 of the Ordinance and it is to be understood that should any medical practitioner fail to comply with the provision of the Ordinance referred to, he will render himself liable to prosecution and on conviction to a penalty of \$50.00 and costs. (See section 27 Public Health Ordinance.)

The Department will be pleased to furnish you with a further supply upon application.

There is reason to believe that this action of the Department was met with the approval of the medical fraternity in the Territories generally and that its results have been beneficial.

DEATHS by Epidemic Diseases 1899-1902.

Cause of death	1899			1900			1901			1902		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Typhoid fever.	14	9	5	19	9	10	15	8	7	17	11	6
Small pox	2	..	2	..	..	..	5	2	3	6	1	5
Measles.	11	4	7	..	4	..	9	4	5	62	30	32
Scarlatina.	10	4	6	10	..	..	14	9	5	114	54	60
Whooping cough.	5	3	2	8	3	5	16	9	7	42	18	24
Diphtheria and croup.	21	11	10	41	20	21	32	15	17	99	57	42
Influenza.	16	6	10	17	8	9	11	6	5	7	4	3
Other epidemic diseases.	9	4	5	1	..	1	7	3	4	3	2	1
Epidemic diseases, total.	86	41	47	101	46	55	109	56	53	350	117	173
All causes.	759	405	354	937	504	433	1,065	623	442	1,558	875	683
Deaths from epidemic diseases per 1,000 of all causes.	113.30	101.24	132.77	107.68	91.27	127.02	102.34	89.88	119.91	224.64	202.29	253.29

CONTAGIOUS AND INFECTIOUS DISEASES IN RURAL DISTRICTS AND MUNICIPALITIES.

	Diphtheria					Scarlatina				Typhoid				Measles					Chicken Pox				Small Pox							
	Jan-March	April-June	July-Sept	Oct-Dec	Total	Jan-March	April-June	July-Sept	Oct-Dec	Total	Jan-March	April-June	July-Sept	Oct-Dec	Total	Jan-March	April-June	July-Sept	Oct-Dec	Total	Jan-March	April-June	July-Sept	Oct-Dec	Total					
Rural Districts	27	74	55	66	222	76	97	55	182	310	20	21	35	19	95	22	43	16	25	106	5	9	16	3	33	176	117	170	118	581
Municipalities	13	50	19	65	147	16	64	49	50	179	10	4	1	5	20	101	160	13	5	179	10	2	5	5	22	12	4	8	3	27
The Territories	40	124	74	131	369	92	161	104	232	489	30	25	36	24	115	123	203	29	30	285	15	11	21	8	55	188	121	178	121	608

MORTUARY STATISTICS, 1902.

GENERAL DISEASES.	Totals	Certified by doctor	Sex	Born in					Age										Months																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
				Canada	United States	Great Britain	Other countries	Not stated	Under 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 65	65	Not stated	January	February	March	April	May	June	July	August	September	October	November	December																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Mortuary Statistics—Continued.

Number of column.....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
V.—DISEASES OF THE RESPIRATORY SYSTEM.																															
1. Acute bronchitis.....	17	13	10	7	13	2	..	..	2	14	1	..	..	..	..	..	2	..	..	3	2	1	2	2	..	..	2	2	3	..
2. Chronic bronchitis.....	5	3	2	3	3	..	..	2	..	1	2	1	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	1	2	1
3. Broncho-pneumonia.....	13	10	9	4	9	1	1	2	..	7	3	1	..	..	..	..	..	2	1	3	2	..	..	..	..	..	..	1	2	1
4. Pneumonia.....	113	86	67	49	75	11	19	5	36	25	15	11	7	6	4	12	8	7	15	28	17	7	..	3	3	2	14	6	..	..
5. Pleurisy.....	2	1	1	1	1	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
6. Congestion of the lungs (including pulmonary apoplexy).....	5	5	5	..	4	..	..	1	..	2	..	2	..	..	..	1	..	2	1	..	..	..	..	..	..	..	1	1	..	..
7. Asthma and emphysema.....	1	1	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8. Other diseases of the respiratory system.....	18	5	11	7	12	..	1	5	..	8	4	2	..	1	2	1	..	..	2	..	2	6	1	2	1	2	..	..	2	2
Total.....	171	124	100	71	117	3	15	29	7	62	35	21	12	8	9	9	15	12	14	20	34	26	12	4	5	6	5	19	14	..	
VI.—DISEASES OF THE DIGESTIVE SYSTEM.																															
1. Diseases of the pharynx.....	3	2	3	..	1	..	1	1	..	..	..	2	..	..	1	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..
2. Ulcer of the stomach.....	4	2	2	2	..	1	2	1	..	..	..	..	1	1	2	..	..	..	..	..	1	1	..	1	1	..	..	..	..	..
3. Other diseases of the stomach (cancer excepted).....	3	2	2	1	..	1	1	1	..	..	..	..	1	2	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..
4. Infantile diarrhoea and gastro-enteritis (cholera infantum).....	48	34	23	25	33	4	2	9	32	16	..	..	..	..	..	..	..	1	1	3	2	2	9	5	12	6	2	4	1	..
5. Diarrhoea and enteritis (not infantile).....	11	11	7	4	5	2	4	..	..	..	2	1	2	2	1	3	..	..	1	1	3	1	1	1	..	3	..	..	..	..
6. Dysentery.....	1	1	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7. Hernia and intestinal obstructions.....	14	14	10	4	9	..	3	2	5	2	1	1	1	2	3	..	..	..	3	1	2	1	1	2	1	2	1	..	..	..
8. Other diseases of the intestines.....	2	..	..	2	..	..	1	1	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9. Diseases of the liver.....	3	3	2	1	2	..	1	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..	..
10. Peritonitis (not puerperal).....	10	10	5	5	4	2	3	1	..	..	..	2	3	3	2	..	..	..	1	1	..	..	..	..	3	4	1	..	..	..
11. Iliac abscess (typhilitis, perityphilitis, appendicitis).....	14	12	10	4	9	3	2	..	..	..	..	6	3	3	1	..	1	..	..	2	3	1	..	..	3	2	1	2	..	..
Total.....	113	91	65	48	64	13	20	16	37	20	12	10	6	11	10	7	..	2	5	9	15	5	12	17	18	14	9	6	1	..	

Mortuary Statistics—Continued.

Number of column.....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
X.—DISEASES OF THE LOCOMOTOR SYSTEM.																														
1. Diseases of bones and joints.....																														
2. Amputation (for unspecified disease).....																														
3. Other diseases of locomotive organs.....																														
Total.....																														
XI.—MALFORMATIONS, DISEASES OF INFANCY, DISEASES OF OLD AGE.																														
1. Still-births.....	18	11	10	8	18					18									3	2	1	1	1	3	1	2	2	1	1	
2. Congenital debility and malformations.....	128	51	78	50	126			2		124	4								8	7	14	9	12	15	8	12	9	6	10	8
3. Other diseases of infancy.....	11	4	6	5	9			2		10	1								1	1	2	2	2	2	2	3	1	1	1	5
4. Senile decay.....	43	20	20	23	10	1	16	4	2						1	42			8	4	8	7	3	2	3	1	1	5	6	5
Total.....	200	86	114	86	173	1	16	8	2	152	5				1	42		20	14	25	17	18	22	14	15	11	13	17	14	
XII.—SUICIDE.																														
1. Poison.....	1	1	1			1							1						1											
2. Strangulation or hanging.....						1		1				1														1	1			
3. Asphyxia.....	2	1	1	1																										
4. Drowning.....																														
5. Firearms.....																														
6. Cutting.....	1	1	1				1									1			1											
7. Other methods.....																														
Total.....	4	3	3	1		2	1	1				1	2				1	1	1	1						1	1			

VITAL STATISTICS.

The work of the Department carried on under this head during the past year calls for no special remark. The subjoined tables tell their own tale of a progress which must be regarded as in many respects eminently satisfactory. Registrars continue, for the most part, to discharge their duty with efficiency. The rapid increase of settlement, however, calls for the erection of one or two new registration divisions, and this matter is now under consideration.

The value of the vital statistics records of the Territories is each year becoming more apparent from the increasing number of applications received for searches and certified extracts. During the past year 50 searches were made and 36 certificates were issued. The accommodation available for the keeping of these records is now quite inadequate, and, with another year's returns on hand, it will be absolutely necessary to make other arrangements in order that the work of this branch may continue to be conducted in a systematic manner.

No changes in the boundaries of registration divisions were made during the year, but the following changes of registrars took place: Mr. Louis Marion replaced Mr. Francois Tourond in the Batoche division, Mr. M. C. Bernard replaced Mr. W. L. Bernard at Calgary, and Mr J. C. Murray was reappointed registrar for the Pelly Division in place of Mr. E. Challen Clark.

The Department has felt justified this year, in view of the larger number of returns of births, marriages and deaths received in paying more attention to analysis of the same for statistical purposes, and several new tables have been added to this section of the report which, it is hoped, will prove interesting and instructive to that portion of the thinking public which gives its attention to the social statistics of the Territories.

Owing to the tremendous changes which have taken place in our population since the publication of the results of the 1901 census, as far as these relate to the Territories, on account of the unprecedented influx of immigration, these results have been rendered of little more than academic interest at the present time and are quite useless as a basis on which to figure out intracensal estimates of population which would be of sufficient value to permit of birth and death rates being established.

VITAL Statistics 1902.

DIVISION.	Births.			Mar- riages.	Deaths.			
	Male.	Fe- male.	Total.		Male.	Fe- male.	Total.	
Banff ..	20	12	32	8	10	10	20	
Batoche ..	62	53	115	31	24	24	48	
Battleford ..	25	25	50	4	21	12	33	
Calgary	186	181	367	136	130	105	235	
Cannington W ..	18	23	41	19	5	5	10	
Cannington E.. ..	4	7	11	....	1	..	1
Cardston ..	45	48	93	14	9	3	12	
Edmonton ..	69	60	129	41	36	24	60	
Good Spirit ..	9	1	10	....	3	1	4
Grenfell ..	58	55	113	36	17	12	29	
High River ..	24	20	44	8	14	11	25	
Indian Head ..	26	30	56	23	13	4	17	
Kinistino ..	8	8	16	1	5	4	9	
Lethbridge ..	45	66	111	28	15	11	26	
Macleod ..	30	41	71	27	24	13	37	
Maple Creek ..	23	23	46	14	12	5	17	
Medicine Hat ..	77	59	136	32	28	24	52	
Mitchell ..	21	27	48	10	22	16	38	
Moosomin ..	35	33	68	44	15	10	25	
Moose Jaw ..	42	36	78	46	33	19	52	
Pelly ..	9	14	23	5	4	3	7	
Prince Albert W ..	22	25	47	8	18	20	38	
Prince Albert E ..	21	14	35	15	8	7	15	
Qu'Appelle N ..	72	57	129	20	24	29	53	
Qu'Appelle S ..	34	34	68	16	19	17	36	
Red Deer ..	116	87	203	43	45	35	80	
Regina ..	108	84	192	84	41	32	73	
Rosthern ..	104	86	190	56	28	21	49	
St. Albert ..	57	67	124	30	31	29	60	
Saltcoats ..	68	43	111	16	16	7	23	
Shcho.	31	23	54	....	3	2	5
Souris W ..	21	18	39	38	10	5	15	
Souris E ..	37	40	77	19	13	6	19	
Strathcona ..	97	171	168	24	45	42	87	
Victoria ..	187	74	361	64	46	40	86	
Wetaskiwin ..	83	78	161	49	32	30	62	
Weyburn ..	14	8	22	10	5	2	7	
Wolseley ..	23	25	48	13	11	5	16	
Whitewood ..	45	58	103	17	22	21	43	
Yorkton ..	93	69	162	45	17	17	34	
The Territories.	1902	2069	1883	3952	1094	875	683	1558
	1901	1593	1504	3097	869	623	442	1065
	1900	1369	1322	2691	827	504	433	937
	1899	1251	1137	2388	671	405	354	759
Increase over 1901.....	476	279	855	225	252	241	493	

BIRTHS by Months.

Months.	Male.	Fe- male.	Total.	Months.	Male.	Fe- male.	Total.
January	177	165	342	July	157	167	324
February	186	165	351	August	189	165	354
March	162	188	350	September	165	143	298
April	229	179	408	October	162	155	317
May	189	163	352	November	136	139	315
June	168	141	309	December	109	113	222

DEPARTMENT OF AGRICULTURE

MARRIAGES by Months.

Month.	No.	Month.	No.
January.....	136	July.....	90
February.....	128	August.....	86
March.....	57	September.....	65
April.....	91	October.....	75
May.....	52	November.....	92
June.....	106	December.....	116

RELIGIOUS Denominations of Officiating Clergymen.

Denomination.	Officiating clergyman	Bridegroom	Bride.
Presbyterian.....	307	237	239
Methodist.....	238	200	212
Roman Catholic.....	173	177	175
Anglican.....	134	170	145
Lutheran.....	76	119	120
Baptist.....	45	38	46
Mennonites.....	45	43	44
Greek Catholic.....	35	49	56
Latter Day Saints.....	15	16	15
Moravian.....	7	5	6
Evangelical Reformed.....	4	4	2
Roumanian.....	2	2	2
Congregationalist..	1	1	4
Evangelical Union.....	1	1	..
Jewish.....	1	1	1
Others.....	90	31	27

DEATHS of Infants.

Year.	To 1000 births.	To 1000 deaths of all ages.
1899.....	90.45	284.58
1900.....	109.99	384.19
1901.....	101.71	295.50
1902.....	117.91	299.10

Year.	Births of males to 1000 births of females.	Ratio of births to deaths
1902.....	1098	2.54
1901.....	1059	2.90
1900.....	1035	2.87
1899.....	1100	3.14

	Males.	Females.
Mean Marriage Age.....	26.99	23.03
1902.....	28.75	23.03
1901.....	29.20	23.26
1900.....	29.54	23.49
1899.....		

MARRIAGES 1902.—Religious Denominations of Contracting Parties.

BRIDEGROOMS		BRIDES.												
Denominations	Totals	Presbyterians	Methodists	Anglicans	Roman Catholics	Lutherans	Greek Catholics	Mennonites	Baptists	Latter Day Saints	Moravians	Evangel Refornd	Roumanians	Congregationalists
Presbyterians	237	155	36	25	3	6	2		4					3
Methodists	200	36	123	17	1	6	1	1	10					1
Anglicans	170	32	27	93	8	2			7					
Roman Catholics ..	177	5	5	2	155	4	4		1					
Lutherans	119	3	6	3	4	96			2		2	2		
Greek Catholics ..	49						49							
Mennonites	43							43	1					
Baptists	38	8	7	2	1				18					
Latter Day Saints	16		1							15				
Moravians	5					1					4			
Evangelical Refmd	4			1		3								
Roumanians	2											2		
Congregationalists	1					1								
Evangelical Union	1								1					
Jews	1													1
Others	31		7	2	3	1			3					15
Totals	1,094	239	212	145	175	120	56	44	46	15	6	2	2	4

MARRIAGES 1902.—Origins of Contracting Parties.

BRIDEGROOMS		English Speak'g countries				BRIDES.								
Eng. Speak'g countries.		Canada	United K'gdom	United States	Totals	Others								
						German	Galician	Scandinavian	French	Others	Totals	Halfbreeds	Indians	Totals, all origins
Eng. Speak'g countries.	Canada	318	57	37	412	7	2	1	1		11			423
	United Kingdom ..	69	92	13	174	9	1		1	3	14			188
	United States	17	8	59	84	4					4			88
	Totals	404	157	109	670	20	2	1	2	3	29			699
Others	German	3	3	7	13	157		2			159			172
	Galician						103				103			103
	Scandinavian		1	1	2			32			32			34
	French	2	2	2	6				31		31			37
	Others								1	22	23			23
	Totals	5	6	10	21	157	103	34	32	22	348			369
	Halfbreeds											15		17
	Indians												9	9
	Totals, all origins	409	164	120	691	177	105	35	34	25	377	15	11	1094

TERRITORIAL HOSPITALS.

The new Hospital Ordinance appears to be working in a satisfactory manner, and the prompt payment of grants which has been made possible thereby is appreciated by those upon whose shoulders devolves the burden of financing these institutions. During the year a new hospital was opened at Yorkton which will, to a large extent, take the place of the unfortunate Saltcoats Cottage Hospital which as yet remains closed, and will no doubt prove a boon to that section of the country.

There has hitherto been no Territorial hospital on the main line of the Canadian Pacific Railway at any point east of Regina and, consequently, it has been the habit of persons requiring free hospital treatment in that portion of the Territories to make their way to the Brandon General Hospital. In May last a communication was received from the secretary of that institution in which was embodied the following resolution of the Board of Directors:

That the Government of the North-West Territories be notified that this Board has decided not to receive any charity patients for treatment in the Brandon Hospital and that they be asked to make the matter as publicly known as possible.

As it was recognised that the directors of the Brandon hospital were quite within their rights in taking the stand indicated in the above resolution, steps were at once taken to make this known to the public, and especially to the medical practitioners of the portion of the Territories affected. I am pleased to say that one practical result has been that the citizens of Moosomin, recognising the necessity for more hospital accommodation in the extreme easterly portion of the Territories, at once bestirred themselves with the result that a cottage hospital has been started at that point and is now in active operation. Arrangements are also well advanced for the opening of a similar institution at Moose Jaw.

Towards the close of the year the management of the Galt Hospital at Lethbridge intimated to the Department that, on account of the heavy annual deficit, it had been decided not to receive public patients after the 31st December, and to operate the hospital thereafter as a private institution solely for the benefit of the employees of the Alberta Railway & Coal Company as originally intended by the founder, the late Sir A. T. Galt. On further consideration, however, and at the request of the citizens of Lethbridge, the hospital board subsequently decided to continue to receive public patients up to the end of March in order that ways and means might be devised for carrying on the institution as a general hospital. It is certainly in the interest of the public of Lethbridge and vicinity that an institution which has done such good work in the past should be kept operative and it is hoped they will rise to the occasion.

It would appear to be advisable for the Department to take some steps towards the regulation of hospital nomenclature. The hospital at Regina is officially designated "Regina Cottage Hospital" while its popular title is "Victoria Hospital, Regina." There is also a Victoria hospital at Prince Albert and a Queen Victoria hospital at Yorkton. At Edmonton there is Edmonton General Hospital and Edmonton Public Hospital. The multiplicity of such names is confusing and apt to lead to mistakes, and I would strongly recommend that either some departmental regulations be issued or that an attempt should be made to arrive at a general understanding on the subject with the directorate of the various hospitals.

The usual statistics are appended. It is satisfactory to note that while there is no very large increase from last year in the aggregate volume of work done by the Territorial hospitals, the value of charity work they have been called upon to do has not increased to any considerable extent, and that there has been a distinct gain in the amount received from paying patients. There has been some decrease in the amount of total indebtedness also, while the considerably smaller cost of maintenance per patient per diem, notwithstanding the rise in prices of almost every kind of supplies, would seem to indicate that hospital management in the Territories is getting on a more business like footing.

HOSPITAL Statistics.—I.

Name of hospital	Town located in	Approximate area served in square miles	Total cost of buildings	Total cost of furnishing	Cost per patient per day				No. of patients 1902	No. of days treatment, 1902	Value of charity work done 1902
					1898	1899	1900	1901			
Saltcoats Cottage Victoria	Saltcoats, Regina	closed	\$ 7,200.00	\$ 1,579.40	\$ 1.58	\$ 1.81	\$ 1.75	\$ 1.73	140	101	2,465.16
Medicine Hat General	Medicine Hat	45,170	29,346.68	6,190.61	.88	.91	1.16	1.22	17	521	7,837.82
Victoria	Prince Albert	114,000	(rented)	979.81	2	2	2.23	1.69	1.66	61	1,050.1
Edmonton Public	Edmonton		10,075.01	2,782.80				1.23	1.05	258	4,584
General		50,000	27,905.71	4,576.99	1.49	1.49	1.00	.70	.85	283	5,282
St. Albert	St. Albert						1.00	.69			
Holy Cross	Calgary	25,000	31,858.49	6,601.12	1.20	1.44	1.28	.91	.89	481	7,052
Calgary General			24,745.03	4,222.80		.99	.94	1.01	.89	565	8,075
Galt	Lethbridge	25,000	23,435.18	6,834.83	.88	1.52	1.46	1.41	1.08	218	7,099
Macleod General	Macleod		4,050.00	1,177.67	.98	.98	1.92	1.22	1.20	150	2,173
Queen Victoria	Yorkton	8,735	3,467.42	1,190.00					1.78	21	302
Territories	{ 1902 1901 1900		171,060.69	38,708.26						2,659	46,359
			161,049.78	34,326.49						2,646	43,014
		304,340	153,729.89	27,946.22						2,142	38,542

HOSPITAL Statistics.—II.

Expenditure 1902	Revenue						Liabilities					
	Cost of maintenance	On hand Jan'y 1st 1902	Contributions from		Pay patients	Outside nursing	Total	Open accounts	Interest bearing notes bank	Mortgages on real estate	Rate of interest paid	Total indebtedness Dec 31, 1902
			N. W. T. ine'dg Govt. grants	E. Can. and other sources								
4,020.28	231.38	1,980.70		1,555.12		3,787.20	3,208.43	1,097.40				4,305.83
9,177.88	151.46	3,018.31		3,340.03	299.35	8,809.15	741.00	552.50				3,293.50
1,798.38	2,873.79	1,313.73		457.25		4,644.77				2,000.00	6	
4,918.15	101.75	2,797.98	5.00	3,274.60		6,179.33	597.37	1,166.57		8,666.57	6	10,430.51
1,800.52	278.99	2,841.28	755.90	3,343.35		6,407.01		718.30		23,874.56	5	24,520.74
6,326.00	257.78	3,409.23	200.00	5,610.73		9,477.74				5,000.00	0	5,000.00
7,189.90	171.22	3,490.36		5,565.24	135.95	9,362.77	1,400.00					1,400.00
7,674.16		2,138.47	1,466.11	3,353.60		8,984.37						
2,820.55	197.91	1,318.42	207.00	998.65	6.00	2,727.98	188.69					188.69
540.42		2,290.95	3,815.00	280.75		6,386.70	2,412.97					2,412.97
48,866.21		24,599.43	6,449.01	28,779.32	441.30	66,747.02	8,548.46	3,534.77	39,541.13			51,552.24
47,665.50		27,650.31	2,696.77	26,849.69	714.15	94,096.64	4,179.84	13,846.12	37,124.76			65,150.72
47,168.70		24,519.15	5,021.71	18,762.95	612.75	48,916.56	5,152.17	42,390.00	2,500.00			50,042.23

INCURABLES.

At the beginning of the year the following indigent persons, suffering from incurable diseases, were being maintained by the Government in Medicine Hat General Hospital:

Charles Moore, age 81, admitted February 25th, 1899; James

Coudon, age 73, admitted June 10th, 1899; Robt. Reid, age 85, admitted April 27th, 1899; William Bowman, age 67, admitted December 20th, 1893; and Wasyl Halabousa, a Galician boy, admitted in November, 1902. This lad subsequently died on February 16th. William Bowman gave considerable trouble to the hospital authorities and nurses, and after putting up with his eccentricities and open and defiant disregard of the regulations of the hospital for a considerable time, application was made to the Department for authority to discharge him, which, after due enquiry, was granted. He left the hospital on August 5th. In December Charles Larson, who had for some time been under treatment in the Macleod General Hospital for paralysis of the lower limbs, the result of a handcar accident, was transferred to Medicine Hat; and in August May Scott, an epileptic of many years standing, from South Qu'Appelle, was added to the list of incurables under the care of that institution.

IX.—OFFICE WORK AND ORGANISATION.

DEPARTMENTAL LIBRARY.

The usual additions have been made to the Departmental library during the past year for which the Department is indebted to a large number of scientific institutions, in nearly every part of the world, through whose courtesy a very useful and valuable technical library is gradually being built up.

The following periodicals are received regularly in the Department: Co-operative Farmer, Breeders' Gazette, Orange Judd Farmer, Farmers' Advocate, Scottish Farmer, Country Gentleman, Irrigation Age, Live Stock Journal, Nor' West Farmer, Farming World, Pastoralists' Review of Australasia, Experimental Station Record, Commercial, Bradstreet's, The Crop Reporter (United States), Monthly Weather Review (United States and Canada), United States Consular Reports, The Industrialist (Kansas), Labour Gazette, Queensland Agricultural Journal, Journal of Agriculture, South Australia; Agricultural Gazette, Tasmania; Journal Board of Agriculture, Great Britain; Journal Board of Agriculture, Ireland; Transactions of the Royal Statistical Society, and Public Health.

OFFICE ORGANISATION.

I have ventured the statement in previous reports that the most useful work the Department can hope to undertake is to help the agricultural classes to "help themselves," not by means of profuse expenditure of public funds, but rather through co-operative effort between the Department and the farmer and rancher. Co-operation with the public demands getting into close touch with the people to ascertain their wants and invent remedies, and that again means that there must be two sides to the work of the Department, namely, the outside or technical and the inside or administrative. During the pioneer, or formative period of the Department, it was found possible more or less to combine the two, but there can be no doubt that the period in the history of the Department has come when the line between the technical and administrative branches must be more sharply drawn and the deputy relieved of the bulk of the outside work, so as to leave him free to devote individual attention to administrative affairs, which, of course, involves providing the Department with adequate technical assistance.

STATISTICS OFFICE WORK.

Accountant's Branch.

Year.	Number of deposits made.	Number vouchers prepared.
1900	2,455	396
1901	2,838	727
1902	3,710	733

Correspondence Branch.

Details.	1898	1899	1900	1901	1902
Letters received.....	8,511	10,718	10,475	13,244	17,262
Letters sent.....	7,551	13,763	15,472	12,064	20,383
Circulars, blank forms, e'tc., sent.	3,949	6,388	12,760	8,812	33,719
Licences and certificates issued.....	6,144	2,456	2,645	2,936	3,540

CONCLUSION.

In penning the concluding lines of what will be my fifth and last annual report of the transactions of the Territorial Department of Agriculture, I desire to extend to each member of the inside staff, to the small army of outside officers throughout the country, and to the agricultural and Territorial press my deep felt gratitude for the loyal and active support I have always received in carrying out, under the direction of yourself and predecessors, the various schemes undertaken by the Department having in view improvements in agriculture and live stock husbandry and would earnestly bespeak for my successor in office the same encouraging treatment.

I hope that I may truthfully say that the organisation and development of this Department has been largely a labour of love with me, and it is with the keenest regret and reluctance, and only at the command of private considerations of some urgency, that I tender my resignation.

I have the honour to be, Sir,

Your obedient servant,

CHAS. W. PETERSON,

Deputy Commissioner.

APPENDIX A.

TERRITORIAL PUREBRED CATTLE BREEDERS' ASSOCIATION.

Officers for 1902-3.

President	John A. Turner, Calgary, Alta.
First vice president.....	P. Talbot, Lacombe, Alta.
Second vice president	D. H. Andrews, Crane Lake, Assa.
Secretary treasurer and Managing director	C. W. Peterson, Calgary, Alta.

Breed directors:

Shorthorns	F. A. Mead, Pincher Creek, Alta.
Herefords	A. B. McDonald, New Oxley, Alta.
Polled Angus	R. S. Lake, Grentell, Assa.
Galloways.....	E. D. Adams, Calgary, Alta.
Dairy breeds	J. C. Pope, Regina, Assa.

Ex officio directors:

Hon. Dr. Elliott.....	Commissioner of Agriculture, N.W.T.
F. W. Hodson.....	Dominion Live Stock Commissioner.

Auditors:

P. Talbot	Lacombe, Alta.
D. H. Andrews.....	Crane Lake, Assa.

Executive committee:

John A. Turner	Calgary, Alta.
P. Talbot.....	Lacombe, Alta.
D. H. Andrews	Crane Lake, Assa.
C. W. Peterson.	Calgary, Alta.

Honorary members:

Geo. H. Greig	Secretary Manitoba Purebred Cattle Breeders' Association, Winnipeg.
A. P. Westervelt.	Secretary Ontario Purebred Cattle Breeders' Association, Toronto.
T. R. Anderson	Deputy Minister of Agriculture, Victoria, B.C.

MR. CHAIRMAN AND GENTLEMEN,—I feel certain that the degree of usefulness now attained by this association far surpasses the most sanguine hopes of those who were present at the meeting held in the Alberta Hotel, Calgary, on September the 14th, 1900, where a few enthusiastic breeders had gathered for the purpose of completing the formalities incidental to organising this association. It therefore affords me great pleasure to submit my third annual report of the transactions of the Purebred Cattle Breeders' Association.

ANNUAL PUREBRED CATTLE SHOW.

The first annual purebred cattle show held in conjunction with the spring stallion show of the Horse Breeders' Association proved to be the largest and most interesting exhibition of the kind ever held in the Territories. Two hundred and twenty purebred cattle of splendid

quality, bred in the Territories, were on exhibition, a large number of which competed for prizes. Professor Geo. E. Day, of the Ontario Agricultural College, the well known expert live stock judge, made the awards. His services were kindly placed at our disposal by the Dominion Live Stock Commissioner's Branch, and the practical and entirely satisfactory manner in which he performed his duties added greatly to the educational value of the show.

The breeds represented were Shorthorns, Aberdeen Angus, Herefords, and Ayrshires, the majority being, of course, Shorthorns.

1902 ROLL OF HONOUR.

The following is a list of the names of prize winning animals and those of their owners :

HEREFORDS.

Bulls.—One year.

- 1st. Truck of Red Deer No. 120275 Am...The Mossom Boyd Co.,
(1629) Can... Prince Albert, Sask.
- 2nd. Growler of Red Deer No. 120271 Am...The Mossom Boyd Co.,
(1624) Can... Prince Albert, Sask.

ABERDEEN ANGUS.

Bulls.—Any age.

- 1st. Milton 2nd No. 602 Can. 36664 Am...H. A. Day, Lacombe.
- 2nd. H. A. Day, Lacombe.
- 3rd. King of the West No. 603 Can.....H. A. Day, Lacombe.

Cows.—Any age.

- 1st. Hillsburg Alice No. 3291 Am.....H. A. Day, Lacombe.
- 2nd. Ayah 5th No. 566 Dom.....H. A. Day, Lacombe.
- H.C. Jessie No. 496 Dom.....H. A. Day, Lacombe.
- C. Hillsburg Annie No. 32913 Am.....H. A. Day, Lacombe.

AYRSHIRES.

Bulls.—Any age.

- 1st. Hatton No. 10188.....J. C. Pope, Regina.
- 2nd. Hero of Hatton No. 13851.....C. W. Peterson, Calgary.

Cows.—Any age.

- 1st. Lady Lochmunock No 13852.....C. W. Peterson, Calgary.

SHORTHORNS.

Bulls.—Three years and over.

- 1st. Statesman Chief No. 27270Chas. Shattuck, Davisburg



TROUT CREEK HERO—28132.

THE HIGHEST PRICED ANIMAL AT CALGARY SALE.

Entered and sold by John Ramsay, Priddis, Alta., to Robert Page, Pine Lake, Alta.

J. RAMSAY,

R. PAGE.

Price, \$290.00.

- 1st. Queen of Pine Lake, Vol. XVI H. Raikes, Pine Lake.
2nd. Hodson No. 42129 Canadian Land & Rancho
Co., Crane Lake, Assa.
3rd. Saxon Myrtle, Vol. XVIII Samson & Macnaughton,
Calgary.

H.C. Miss Rosebud, Vol. XVIII.....P. Talbot & Son, Lacombe.

Cows.—Yearlings.

1st. Lady Groves.....Samson & Macnaughton,
Calgary.
2nd. Rosa ReginaSamson & Macnaughton,
Calgary.

CHAMPIONSHIPS.

Best Shorthorn Female, any age.

Antelope No. 25041,.....Canadian Land & Ranch
Co., Crane Lake, Assa.

ANNUAL AUCTION SALE.

The second annual auction sale, which was held on the 15th and 16th of May last, was probably the largest sale of purebred cattle ever held in Canada. From the modest beginning of 64 head sold at the first sale for \$5,451.00, this system of buying and selling purebred cattle gained so rapidly in popularity that at the following sale 220 head were disposed of for \$21,077.00. In spite of the large increase in the number of entries the average price realised was \$95.80 against \$85.17 of the previous year, the bulls (168) averaging \$102.00 and the cows and heifers (52) averaging \$63.71. The number of animals of the various breeds and the average prices realised were as follows: 191 Shorthorns, average \$98.92; 14 Herefords, average \$91.42; 12 Aberdeen Angus, average \$69.16 and 3 Ayrshires, average \$51.30. It will be observed that Shorthorns brought the highest price at the sale and that Herefords made a close second. It may be mentioned that had the Herefords, which were yearlings, only been a little older, they would have realised quite as high prices as the Shorthorns.

The highest priced bull was a Shorthorn sold by John Ramsey of Priddis, Alta., for \$290.00. The Canadian Land & Ranch Co., of Crane Lake, had the honour of contributing the highest priced cow which realised \$140.00 and was a Shorthorn. Geo. Geary, of Innisfail, sold one bull for \$215.00. Messrs. P. Talbot & Son disposed of seven bulls at an average of \$165.00, while Messrs. Mead Bros., of Livingstone, contributed six which averaged \$164.16. John Beggs, of Arcola, in south-eastern Assiniboia, sold a promising young Shorthorn for \$210.00. This latter instance demonstrates in a very striking manner the great benefit to be derived by members from the association sale. The bull sold by Mr. Beggs was shipped 640 miles to Calgary, the entire cost to the contributor, including entry and transportation, being only \$4.25 (2 cents on the dollar), leaving a net sale price of \$205.75, which was paid over after the sale. Mr. Beggs had in the past been unable to find a profitable market for his bulls at home. Animals were collected from seven points in Assiniboia, five points in Saskatchewan and nine in Alberta, and deliveries were made to five stations in Assiniboia, two in British Columbia and seventeen in Alberta.

The above facts speak volumes for the auction sale system of disposing of cattle, which is particularly suited to conditions as they exist in the Territories, where, owing to the enormous extent of the country, purebred herds are few and widely separated, and the expense of visiting them so great that the average breeder is face to face with the necessity of purchasing by mail. At the Calgary sale hundreds of animals are on

view, low passenger rates are available to and from the sale and all animals purchased are delivered for a nominal charge at the purchaser's nearest railway station. In fact every condition is so favourable both to buyer and seller that the sale is bound to grow to large proportions.

PUBLIC MEETING.

On the evening of the 15th of May, the first day of the sale, a public meeting was arranged for in the Alexander Hall under the auspices of the Dominion and Territorial Departments of Agriculture. The hall was packed to the doors and the meeting was beyond doubt a most successful one from an educational standpoint. The speakers were F. W. Hodson, Dominion Live Stock Commissioner, Geo. E. Day, Professor of Agriculture and Animal Husbandry at the Ontario Agricultural College, Guelph; Professor J. H. Grisdale, Agriculturalist at the Dominion Experimental Farm; Professor G. C. Greelman, Superintendent of Farmers' Institutes for Ontario; and Robert Miller of Stouffville, Ontario, President of the Dominion Shorthorn Breeders' Association. As the addresses delivered by Messrs. Hodson and Day bear more or less directly on the purebred cattle industry and the objects of this association, I give below a brief report of their discourses.

ADDRESS BY F. W. HODSON.

Mr. Hodson dealt with the great advantages and possibilities of the auction sale system of buying and selling live stock. He considered it of the utmost importance that the ranges of the West should be stocked with superior cattle. The buyers were gradually getting more discriminating in their purchases. There was a much better price paid for prime steers than inferior ones, and this difference in value was rapidly increasing. That good stock only should be kept was not only of importance to ranchers but also to the citizens generally. "How much better would it be for the residents of Calgary," asked the speaker, "if a rancher in this district who owned one hundred shagnappies, worth, say, \$500.00, could turn them into a smaller number of high class horses, commanding a higher market value?"

Auction Sales.

The speaker stated that some of the Dominion officials had made a special study of the auction system as a means of selling and exchanging purebred stock. This method had been in use in the old country for over one hundred years. Nearly every village there has an auction sale. Some had them as often as weekly. It was partly due to the presence of these sales, and to their being advertised in every part of the civilised world, that British purebred live stock has become so widely distributed and commanded such high prices. If this system of disposing of stock had become so popular in England, surely no reason could be advanced why it should not be equally so in Canada. At Guelph, Ontario, a sale and show has been established and the officials in charge had tried to make it a model and the Dominion Government had given very material assistance towards enterprises of that kind in each province. A \$20,000.00 building had been erected at Guelph to accommodate the sale and fat stock show there. Last year the Provincial Government

gave \$5,000.00 to assist in the work, and this year the grant would be materially increased. Many farmers in Ontario could raise a few good animals every year, but it was too expensive for them to do sufficient advertising to make good sales. Last year one of the smaller breeders topped the list at the Guelph sale, his animal selling at \$315.00. The auction sale system was not only a good thing for the seller, but also for the buyer, who was saved the expense of travelling from herd to herd in search of bulls. Many people were prepared to buy good animals and pay good prices but they did not always know where to find them. Therefore, the speaker maintained, the association auction sale was of immense benefit to buyer and seller alike all over the Territories, not only financially, but also from an educational point of view. The best breeders of purebred live stock were not in the business for the money there was to be made out of it, but because they had a love for purebred stock. Such men should receive every encouragement at the hands of the various legislatures and individuals. A country that produced superior live stock was bound to be a great country. Without improved sires the rancher would not realise as much from his labours as he could by using purebred sires of high individual merit and his spending capacity was correspondingly decreased. This was a point the business people of the Territories were interested in and should bear in mind when they were asked to support the live stock associations. Breeders of purebred stock invariably add wealth to a country. In closing, the speaker strongly urged the citizens of Calgary and the local government to assist the show and sale generously.

PROFESSOR DAY'S ADDRESS.

In his opening remarks Professor Day admitted that he was not familiar with the conditions as they existed in the Great West, and that he must, therefore, crave the indulgence of those present if his observations were not strictly applicable to this part of Canada. His remarks would be particularly intended for the young men. In the first place, stock selected should have good ancestry. This, in his opinion, was a matter of prime importance. Secondly, animals should be registered in a herd or stud book recognised in any part of the world. Where such is not done, good sales would often be lost. The individuals appearing in the pedigree, especially the top crosses, must also be good animals.

It was not sufficient that an animal was imported. The fact that an animal came from England or Scotland would not in itself constitute any guarantee that it was good, bad or indifferent. Few people are able to form an intelligent opinion as to the individuality of an animal by the inspection of the certificate of breeding. The speaker did not know of a more interesting life study for a young man than the study of pedigree and it would probably be found that to do adequate justice to the subject, only one breed could be taken up. In order to obtain intelligent information from a pedigree one must be familiar with the records of the animals named in that pedigree. As a general rule, the larger percentage of animals of superior quality to be found in a pedigree, the better individual and breeder the animal would likely be.

Individuality.

An animal might have a good pedigree and yet be valueless as a

breeder. Some strains of stock were noted for producing a large percentage of good individuals and others for producing only an occasional good one. Some of the great breeders paid more attention to individuality than pedigree; Amos Cruickshank, for instance. Even this prince of breeders appeared to have attached more and more value to the pedigree of his stock the longer he remained in the business, and the probability was that if he were carrying on his work of improving stock at the present date, he would be using nothing but pedigreed stock.

Indications of a Good Animal.

No man is infallible and animals are sometimes selected by an expert stockman that finally prove very disappointing. A bull should have a strong, masculine head and neck, although it should not be coarse. The general conformation of a beef animal should be judged from the standpoint of its value on the butcher's block. It should have a good depth of rib, hind flank, well let down, ribs well sprung, and, as the meat on the upper portion of the body is the most valuable, it should be well covered with firm flesh. It is almost impossible to judge an animal unless it is in good condition. The location of the meat is of prime importance, and it would manifestly be impossible to estimate where an animal was going to put on flesh when put in proper condition or whether the meat would be put on evenly or in patches.

Respecting handling and covering, he might state that the hair should be thick and fine. The hair is the extreme point of circulation and if it is in good shape the chances are the animal will have a strong constitution. One should be able to feel some firm flesh between skin and bone. The skin should not be tight. A bull should carry himself "like a gentleman," not afraid of anything, have a good temper and a full eye.

The speaker said that while it was difficult to get perfection in any one animal, the aim should be to get as near the ideal as possible. He maintained that the greatest virtue or qualification required in a successful improver of stock was "patience." All honour was due to the men who are spending their money and devoting their time to this noble vocation. It might be considered that he had somewhat emphasized the difficulties in the way of purebred stock raising, but we should remember that failures are often the result of making things appear too easy for beginners.

TRANSPORTATION RATES ON PUREBRED STOCK.

For the benefit of breeders I quote the following circular governing freight rates and classification of purebred animals. Where agents refuse to bill such shipments according to the terms of this circular, complaints should be made to the undersigned, who will take the case up with the railway management:

Notice to Agents, Shippers and Consignees.

Reduced Rates for Shipment of Thoroughbred Horses, Cattle, Sheep and Swine.

The following will hereafter govern the transportation of thoroughbred horses, cattle, sheep and swine, in less than carloads, between stations in Manitoba, Assiniboia, Alberta, Saskatchewan and British Columbia, when intended for breeding purposes only.

Shipments will be way-billed at one-half regular tariff rates, and at the

estimated weights as provided in Canadian Joint Classification, with the following exceptions:

Bulls or heifers, one year and under two years.....	1,500 lbs.
Bulls over two years old	2,000 lbs.
Two bulls shipped together not to exceed.....	3,500 lbs.
Three bulls shipped together not to exceed	5,000 lbs.

To entitle shipment of aged (full grown) horses, cattle, sheep and swine, to these concessions, a properly attested certificate of registration must in all cases be produced, showing that the animal is purebred and admitted to full registry in a book of record established for that breed.

Unregistered young stock must be accompanied by breeder's statutory declaration descriptive of the animal and its pure breeding, and showing that it is eligible for registration, and that written application for certificate has been made to the secretary of the book of record for that breed.

Agents must examine stock and satisfy themselves that the animals agree with the descriptive pedigree or statutory declaration presented.

Way-bills for aged stock (full grown) must give description of the animal, number of certificate, name of herd-book, etc.

Way-bills for unregistered young stock must give description of the animal; also notation that breeder's declaration was produced and is on file with copy of live stock contract.

Shipments may be taken without man in charge provided owners sign the usual contract releasing the company from liability in consequence thereof.

The special concessions as authorised by this circular will only apply when owners sign the usual valuation agreement for ordinary stock. The valuation for horses to be \$50 each. If extra values are declared, the weights and rates will be as provided for valuable stock in Canadian Joint Classification current at time of shipment.

Agents must give reference to this circular in way-hilling.

W. R. MACINNES,
General Freight Agent,
Winnipeg Man.

AFFILIATION OF AGRICULTURAL SOCIETIES.

A cordial invitation was sent out early last year to the various agricultural societies to become affiliated with this association. It was pointed out that it was the earnest desire of the association to work hand in hand with agricultural societies in the good work of advanced live stock husbandry. Such affiliation with local societies would not only make the association truly representative of every portion of the Territories, but would greatly strengthen any petitions or representations which may from time to time be rendered necessary in order to protect and encourage the cattle industry of the Canadian North-West. Eighteen societies responded to the invitation, making the membership of the association for the past year 143, nearly three times the number that were enrolled in 1901.

CONSTITUTION AND BYLAWS.

In accordance with motions passed at the last annual meeting, the constitution and bylaws of the association have been revised, amended and consolidated during the year. The amendments to the constitution provided for the admission to membership of agricultural societies, the appointment of expert judges and the election of delegates to represent the association on fair boards. Special attention was devoted to arranging the various sections in more convenient order for reference. The constitution as it now stands appears to be very complete and workable and a copy thereof has been furnished each member.

I herewith attach a statement of receipts and expenditure, duly audited.

Respectfully submitted,
CHAS. W. PETERSON,
Secretary and Managing Director.

APPENDIX B.

TERRITORIAL SHEEP BREEDERS' ASSOCIATION.

Officers for 1902-3.

President.....D. H. Andrews, Crane Lake, Assa.
 First vice president.....G. W. Quick, Maple Creek, Assa.
 Second vice president.....John A. Turner, Calgary, Alta.
 Secretary - Treasurer and
 Managing DirectorC. W. Peterson, Calgary, Alta.

General directors :

J. McCaigLethbridge, Alta.
 J. R. ThompsonCalgary, Alta.
 D. McKerracher.....Medicine Hat, Assa.
 J. A. GrantMedicine Hat, Assa.
 T. J. Carscadden.....Fort Saskatchewan.

Ex officio directors:

Hon. Dr. Elliott.....Commissioner of Agriculture, N. W. T.
 F. W. Hodson.....Dominion Live Stock Commissioner.

Auditors:

J. R. Thompson.....Calgary, Alta.
 D. McKerracher.....Medicine Hat, Assa.

Executive committee:

D. H. AndrewsCrane Lake, Assa.
 G. W. Quick.....Maple Creek, Assa.
 John A. TurnerCalgary, Alta.
 C. W. Peterson.....Calgary, Alta.

REPORT OF THE SECRETARY.

MR. CHAIRMAN and GENTLEMEN.—The desire of Territorial flock masters to form an association through which to protect their interests has at last been accomplished. The gathering of breeders at Calgary on the occasion of the annual purebred stallion and cattle shows and sale and association meetings, was taken advantage of to call a meeting to organise a Territorial Sheep Breeders' Association. To this end the following circular letter, dated the 17th of April last, was widely distributed among sheep breeders by the Territorial Department of Agriculture:

A number of prominent sheep breeders have come to the conclusion that the time has arrived when the flockmasters of the Territories ought to unite and form a "Territorial Sheep Breeders' Association" and I am now directed by the Commissioner to invite you to attend an organisation meeting to be held at Calgary on the morning of May 17th.

The reason why Calgary has been chosen for the first meeting is that a number of leading sheepmen will be present there during "Live Stock Convention" week, and half rates have been put in force from all points in the Territories to Calgary and return. Should you decide to attend the meeting in question, which I sincerely trust you will, kindly advise me as soon as possible and purchase a full-fare ticket from your ticket agent, obtaining from him a "Standard Certificate," which, after being signed by me at Calgary, will entitle you to return free of charge.

The invitation of the Department was satisfactorily responded to and on May 17th a fairly representative meeting assembled at which The Territorial Sheep Breeders' Association was organised, constitution and bylaws adopted, and the undersigned appointed secretary.

The fact that an association to protect the interests of sheep breeders had been formed was then communicated to flockmasters in the various portions of the country, and a hearty invitation given them to join. As a result the membership of the association is now gradually reaching satisfactory proportions.

Objects of the Association.

The principal objects of the association are to forward the interests of sheep breeders and to encourage a general and constant improvement in the breeding and handling of sheep. Soon after the association had been organised the officers met to discuss its future work and policy, and it was unanimously decided that the most important task awaiting action at the present time was to encourage the importation, local production and use of an increased number of purebred rams. It was consequently decided to institute an annual auction sale and show of purebred sheep.

Annual Autumn Purebred Sheep Show.

The success which attended the show held in conjunction with the auction sale of cattle at Calgary was such that the officers of the Sheep Breeders' Association considered it advisable to inaugurate a show in connection with the proposed auction sale of sheep, and the following rules were adopted:

Rules Governing Sheep Show.

1. The management will be under the control of the executive committee of the association.
2. Only animals included in the catalogue of sale and accompanied by proper evidence of pure breeding can be entered.
3. The decision of the judge is to be absolutely final.
4. There will be a class for each recognised breed of sheep, and each class will be composed of the following sections: (1) two-year-olds and over; (2) shearlings; (3) lambs; males and females of each.
5. The ages of sheep will be computed to the 15th of May.
6. In sections of three entries, one prize will be awarded; in sections of four entries, two prizes, and three prizes will be given if there are five or more entries. In case there should not be a sufficient number of entries in any one section to qualify for a prize the various sections of the class may be amalgamated and prizes awarded on the above basis.

Sheep Dog Trials.

In order to add additional interest to the show, and encourage shepherds to take greater pains with the training of their dogs, it was proposed that sheep dog trials should be arranged for. Correspondence was accordingly initiated in order to ascertain what support such an undertaking would command in the way of entries. Very little encouragement was, however, received, and as there did not appear to be any prospects of a large number of entries forthcoming it was decided to postpone this feature for a year.

Sheep Show.

The show which was held in conjunction with the Medicine Hat Agricultural Exhibition on September 30th and October 1st proved an unqualified success. The largest number of purebred sheep ever collected for show purposes west of Lake Superior were to be seen, eighty-two of which competed for prizes valued at \$456.00. The breeds represented were Shropshires, Oxford Downs and Rambouillets. The judging was performed by Messrs. Wm. Sharman, of Souris, Man., and S. W. Paisley, of Lacombe, who were appointed for the purpose by the Territorial Department of Agriculture. An attempt had been made to bring up a judge from Eastern Canada. At the last moment, however, it was found impossible to make the necessary arrangements, but the consensus of opinion was that the awards were very satisfactorily placed, in spite of the fact that competition was keen and the task of judging an exceedingly difficult one. Very considerable interest was taken in the judging by the visiting sheepmen. This feature of a live stock show is being strongly brought to the front by all the Territorial live stock associations, on the principle that whatever educational value attaches to agricultural exhibitions of all kinds, centres almost entirely in the proper placing of the awards by competent and disinterested judges and every effort was consequently made to bring out as large a crowd as possible to witness the judging. The keenest interest was naturally exhibited in the judging of the championship classes. D. McKerracher carried off this coveted honour in the open class for rams and ewes of the Oxford breed. The highest place for Shropshire rams was gained by John A. Turner with a magnificent shearling ram, the like of which has probably never been seen in the West. The championship honours in the open class for Shropshire ewes was captured by the undersigned.

The system adopted by the executive committee of allowing prize-winners to select suitable articles of silver plate from large catalogues was much appreciated by all exhibitors. In this way useful articles found their way to the homes of the successful competitor in the place of the cup and other ornaments (?) frequently given as prizes without regard to the taste or desire of the winner.

OWNERS OF PRIZE WINNING SHEEP.

First Autumn Sheep Show, Medicine Hat, September 30 and October 1, 1902.

Oxford Downs.

Ram, Two Shears and Over

1st	D. McKerracher, Medicine Hat
2nd	John A. Turner, Calgary
V. H. C	D. McKerracher, Medicine Hat
H. C	John A. Turner, Calgary
C	John A. Turner, Calgary

Ram, Shearling.

1st	D. McKerracher, Medicine Hat
2nd	D. McKerracher, Medicine Hat
V. H. C	John A. Turner, Calgary
H. C	D. McKerracher, Medicine Hat
C	D. McKerracher, Medicine Hat

DEPARTMENT OF AGRICULTURE

Ram, Lamb.

1st.....D. McKerracher, Medicine Hat

Ewe, Shearling and Over.

1st.....D. McKerracher, Medicine Hat
 2nd....." " "
 V. H. C....." " "
 H. C....." " "
 C....." " "

Championship Ram, any age, open.

D. McKerracher, Medicine Hat

Championship Ewe, any age, open.

D. McKerracher, Medicine Hat

Shropshires.

Ram, Two Shears and Over.

1st.....John A. Turner, Calgary
 2nd....." " "
 V. H. C....." " "
 H. C....." " "
 C.....Jas. McCaig, Lethbridge

Ram, Shearling.

1st.....John A. Turner, Calgary.
 2nd....." " "
 V. H. C....." " "
 H. C....." " "
 C.....Jas. McCaig, Lethbridge

Ram, Lamb.

1st.....John A. Turner, Calgary.
 2nd....." " "
 V. H. C....." " "
 H. C....." " "
 C....." " "

Ewe, Shearling and Over.

1st.....C. W. Peterson, Calgary
 2nd....." " "

Ewe, Lamb,

1st.....Jas. McCaig, Lethbridge
 2nd....." " "
 V. H. C....." " "
 H. C....." " "
 C....." " "

Shropshire Championships.

Ram, any age, bred in the Territories.

John A. Turner, Calgary.

Ram, any age, open.

John A. Turner, Calgary

Ewe, any age, open.

C. W. Peterson, Calgary

Fine Wools.

Ram, Two Shears and Over.

1st.....	P. Robertson, Medicine Hat
2nd.....	“ “ “

Annual Autumn Ram Sale.

The principle of disposing of purebred stock by auction sale has been put to a thorough test in the Territories during the past two years and has proven such a signal success that it has now become permanently established in the West. These sales wield a powerful influence in developing home breeding of purebred stock by furnishing a remunerative cash market for such animals. They also facilitate the exchange of purebred sires. Experience has taught that farmers and ranchers often have considerable difficulty in the disposal of rams which have been in use in a neighbourhood for a year or two. These sales also furnish a convenient medium for selling discarded sires and buying others.

Local Production of Purebred Rams.

Undoubtedly the sale of purebred cattle at Calgary has almost doubled the local production of purebred bulls and the hope may, therefore, reasonably be entertained that, by providing a convenient cash market for rams every year, the smaller ranchers and farmers throughout the Territories will consider it their interests to acquire purebred flocks for the purpose of supplying this market. At the same time, in organising the first auction sale of purebred sheep the decision of the association to admit rams raised by Manitoba and Ontario breeders upon the same basis as those entered locally was manifestly a wise one. One of the foremost objects of the association is, however, to encourage the local production of purebred rams, but as there are now less than a dozen purebred sheep breeders in the Territories, who could only contribute in a small way, the association quite properly welcomed eastern-bred rams to its sales last year. The preference of buyers was, however, markedly in favour of home-bred and acclimated stock. We will probably always have to purchase our stud rams from our eastern friends, but it should be the policy of the association to see that the ranching demand is supplied from local sources.

The Medicine Hat Agricultural Society agreed to supply a building in which to hold the show and sale and give the association all the assistance in its power, the Dominion Live Stock Commissioner, Mr. F. W. Hodson, and the Territorial Department of Agriculture afforded liberal financial support, and the Canadian Pacific Railway authorities kindly consented to carry two carloads of sheep from North Bay to Medicine Hat free of charge, and to carry Territorial shipments to and from Medicine Hat at one-half the regular rate. Too much praise cannot be given the Canadian Pacific Railway Co. for its far-sighted policy in this respect.

The following were the rules of sale adopted by the Association :

RULES GOVERNING AUCTION SALE.

1. The management will be under the control of the executive committee of the association.

2. All animals entered must be owned by members of the association.
3. Entries for the sale must be received by the secretary on or before thirty days prior to the date of the sale.
4. The association undertakes to issue a catalogue of entries received within the time limit, giving information respecting the names of contributors, number of animals contributed and number of sheep of each breed to be put up for sale, to place this catalogue in the hands of probable buyers, and to do such other advertising as will bring the sale to the notice of interested parties.
5. An entrance fee of fifty cents will be charged on each animal to be put up for sale, which will entitle it to feed on the grounds for not more than two days prior to the sale and until disposed of. This fee must accompany the application.
6. Owners or their agents will be required to take charge of their animals immediately upon arrival at the point of sale, have the animals brought to the grounds, remain in attendance upon them as long as they are there, and be responsible for their delivery into the hands of the proper purchasers at the point of sale or loaded on association cars for delivery by rail after the sale.
7. An entry ticket may be issued for each animal entered, which must be presented to the sale superintendent before an animal will be admitted to the building.
8. Animals not properly entered will not be allowed on the sale grounds.
9. Stock must be in the stalls or in the pens not later than 2 p.m. the date prior to the sale.
10. (a) Each animal offered must be in sound health, and shall be registered in a flock book recognised as reliable by the association.
- 10 (b) Range rams that have lost both ear tags and whose identity cannot, therefore, be clearly established, may be entered upon the registered owner filing with the secretary a declaration to the effect that the animal in question is purebred and registered, stating age, and, if possible, name of breeder. Proper declaration forms may be obtained upon application to the secretary.
11. As it is very important that intending buyers should feel confident that all animals advertised will be put up for sale, no person will be allowed to withdraw an animal which has been entered and accepted, except on account of death of the animal offered or in case of accident. In case of sickness or death, a certificate from a veterinary surgeon must be supplied at the time of sale. The entry fee in all such cases will be forfeited to the association.
12. Prospective buyers will be given an opportunity of handling and examining the stock offered for sale, which will be available for inspection from 3 p.m. of the date prior to the sale until disposed of.
13. The association has made arrangements with the Canadian Pacific Railway Company for special rates and will take delivery of all animals intended for the sale, at the seller's nearest railway station in the North-West Territories, and carry them to the point of sale. Owners must provide at their own expense feed for their animals on the journey. A fee of fifty cents will be charged on each animal to be shipped by rail to the point of sale, which must accompany the application.
14. Each animal entered shall be sold to the highest bidder. There shall be no by-bidding by the owner of the animal or anyone authorised by him. Statutory declaration may be required from any buyer or seller to the effect that any purchase or sale is *bona fide* and that there has been no by-bidding in connection therewith.
15. The privilege and power of withdrawing an animal from the sale at any time shall rest solely with the executive committee and will be exercised at the discretion of its duly appointed representative at the sale.
16. The highest bidder will be the buyer, and if any dispute arises between two or more buyers, it shall be settled by the animal being again put up and re-sold. The decision of the auctioneer shall be final in all cases.
17. All purchases must be settled for within one-half hour of the sale of the animal. If purchasers fail to settle for their purchases as stated the committee reserves full power to re-sell the animal to the best advantage, either publicly or privately, without further intimation, and any loss arising from such re-sale, together with keep and all other expenses will be collected from the defaulters at this sale.
18. Immediately after each purchase is declared the risk of the animal shall be exclusively with the purchaser, and it is declared that until a settlement shall be made in the terms of these conditions, the delivery of the animal shall be suspended.
19. Every care will be exercised by the management to prevent injury or loss of property, but the association will not be responsible for any loss or damage that may occur.
20. Before an animal can be removed from the building the buyer must present to the superintendent an order signed by the secretary and give a receipt

for the animal. This order, together with the receipt, must be left in the hands of the superintendent, and will be evidence of the delivery of the stock.

21. The secretary will have power to give receipt in full for all payments for stock sold and will remit the amount realised for each animal to the owner thereof within two weeks after the date of the sale.

22. The animals will be delivered to the various buyers on the grounds where the sale is held, and the buyers will take charge of them at the close of the sale.

23. Experience has demonstrated that purchasers readily pay from \$3 to \$5 per head extra where they can arrange to have stock delivered at their nearest railway station free of charge and without any trouble to themselves. Such being the case, the association has considered it in the interests of its members to conduct the sale subject to an absolute guarantee that all stock purchased will be delivered to the purchaser's nearest railway station in the North-West Territories, west of Moose Jaw, upon payment by the purchaser of a uniform fee of fifty cents for each animal to be delivered by rail.

24. Every person who contributes an animal to the sale, and everyone who bids at the sale, by so doing agrees to the foregoing terms and conditions.

A prospectus advertising the sale was widely distributed amongst probable buyers, not only in the Territories, but also in the Province of British Columbia and the state of Montana. In order to guard against stock being sold below value on account of being in poor condition, the following hints were brought to the attention of prospective sellers:

Previous auction sales of purebred stock in the Territories have conveyed many useful pointers to breeders. The most unmistakable lesson has been that in order to obtain the maximum value for animals they must be in good, thrifty condition. In fact, it hardly seems possible to have them too fat to please bidders. It is obvious that owing to this circumstance breeders and ranchers cannot afford to send rams and ewes to the sale that do not carry all the flesh it is possible to put on them through legitimate feeding.

One hundred and eight sheep were disposed of, the average price being \$15.62. The bidding was spirited for animals of a high degree of merit of which the sale of the championship Shropshire ram, contributed by Robert Miller, of Stouffville, Ont., was ample evidence, and, while the financial results to some of the contributors may be somewhat disappointing, it is satisfactory to note that sheep of only medium quality could scarcely be sold at any price. This is decidedly the proper attitude for ranchers to take and it augurs well for the sheep industry of the West that buyers should exercise such discrimination in their selection. Of course, the usual weakness for highly fitted animals was in evidence and a good many strong, vigorous rams, fit to do useful work on the range, were sold at small prices.

The highest average at the sale was obtained for Shropshires, contributed by John A. Turner, of Calgary, who sold 37 at an average of \$17.07. Twenty Oxford Downs bred in Eastern Canada, by the same contributor, averaged \$16.55. Twenty-one Shropshires, entered by Jas. McCaig, of Lethbridge, also eastern bred, averaged \$12.86, while some Oxford Downs, entered by D. McKerracher, averaged \$16.75. Most of the rams were bought to be delivered between Medicine Hat and Swift Current, but some purchases were made from points as far north as Strathcona, west as far as British Columbia, and east as far as Gainsboro in South-Eastern Assiniboia. The record sale was that of the championship Shropshire ram for \$34.00. A revelation to onlookers was the keen competition and decided preference shown for homebred rams. This is most satisfactory and encouraging to our breeders. John A. Turner's contribution consisted of seven fine, upstanding fellows, and averaged \$18.00 in spite of the fact that some were lambs, a class of rams not favourably entertained by western flockmasters.

Great credit is due auctioneer Paisley, of Lacombe, who always wields the hammer for the live stock associations on such occasions, for the success of the sale. It is sincerely to be hoped that the officers of the association will be encouraged to continue their efforts in the direction of permanently establishing the annual ram sale.

It is under consideration whether or not it would be advisable to hold the next annual auction sale at Maple Creek. The matter of hotel accommodation is, of course, one of considerable importance, but it is a question if this difficulty will outweigh the advantage of holding the sale in the centre of the most important sheep raising district. Cattle ranchers easily see the advantage of going to Calgary to purchase bulls each year, but it is another matter to persuade sheepmen to travel far to secure purebred rams. Where only one or two rams, involving from \$25.00 to \$50.00, are required some breeders would scarcely consider it worth while to travel any great distance. In this connection it is interesting to note that out of the 108 sheep sold at Medicine Hat only four were delivered there, two of which were taken to Walsh. Thirty-seven were sent to Maple Creek and two-thirds of the number sold were delivered between Forres, 18 miles west and Swift Current 87 miles east of Maple Creek.

Western Canadian Purebred Sheep Record.

At a directors' meeting held in May last the following resolution was moved by Mr. John A. Turner, seconded by Mr. J. A. Grant and carried:

That a record for the registration of purebred sheep of the different breeds, at a uniform fee of 25c per head, called "The Western Canadian Purebred Sheep Record," be kept by the association and that the record in question be handed over to the Dominion Government when the proper machinery has been provided in the Federal Department of Agriculture for the registration of purebred live stock.

In accordance with this motion a record for the registration of purebred sheep has now been opened in the offices of the association at Calgary and a number of registrations have already been made. Sheep entered in the record in question will be admitted to the privileges of the association sale and show. It has been decided to include in the pedigrees of sheep registered in the Western Canadian purebred sheep record the two most notable achievements in the show ring of this association, of ancestors within the second degree, upon the application of the owners. This will have a tendency to stimulate competition and will make a certificate of breeding of some tangible value. It is felt that the mere recital of the initials and ear-tag numbers of ancestors on the ordinary pedigree conveys no useful information to anyone, even to a pedigree expert. This is decidedly a step in the right direction and marks a new era in animal registration methods.

Abortion in Ewes.

A resolution was passed at a directors' meeting at Medicine Hat urging that steps be taken to have an investigation made into the occurrence of abortion in ewes. All arrangements have been made with the Federal and Territorial Departments of Agriculture to have the matter reported upon by veterinary and botanical experts during the present year.

Substitutes for Wool.

It is a peculiar fact that, in spite of unprecedented prosperity and activity in almost every branch of business, the wool industry seems to be undergoing a prolonged period of depression. This depression is not by any means confined to Canada, but is equally as marked in Great Britain, the United States, France and Germany whose woollen trades appear to be as demoralised as our own. The situation in Great Britain has become so strained that a great many firms have gone out of business, while in France the woollen manufacturers have frequently converted their mills into the manufacture of cotton goods. The wool growers of the Territories need scarcely be further informed on the subject. The low value of Territorial wool during a series of years has brought the situation home more eloquently than any recital of facts could.

All sort of speculations have been indulged in as to the reason or reasons for this unfortunate state of affairs and various causes have been blamed such as overproduction, high prices of raw materials (!), etc. But all authorities on the subject agree that the principal cause is undoubtedly the adulteration of woollen goods and the competition of animal hair and cotton, principally the latter.

The statement is made by the National Association of Wool Manufacturers of the United States that the use of cotton goods as a substitute for wool has been increasing enormously of late years. The progress which cotton manufacturers have made in the direction of imitating various makes of woollens has been almost beyond belief. Even with cotton at 10 cents per lb. the difference between that and wool at 50 cents per lb. is so great that it encourages the use of more or less cotton in fabrics which will not command prices that will allow a fair return provided the material used is all wool. The undue expansion of woollen mills cannot be advanced as a cause of the depreciation in the woollen and worsted industry, for there has not been any marked improvement in machinery such as we have seen in the cotton industry; in fact the growth of our woollen and worsted mills has not kept pace with the growth of the country's population. There can be no doubt that one of the causes of the trouble is the increased use of cotton where formerly wool was the material required, the advance in the arts of colouring and designing cotton fabrics having made this substitution possible.

The unsavoury material known as "shoddy" is the fibre recovered from woollen, worsted or mixed rags. It is subdivided into shoddy, mungo, flocks and wool extract. The first two of these are recovered by powerful machines known as "pickers" and "garnets." The picker-tearer takes the rags to pieces and gradually reduces the material to its original fibre and wool garnets open and prepare it for carding. Flocks are produced generally from bits or pieces of all-wool rags which are cut very short into a sort of powder by passing between the blades of a flock cutter. Flocks are chiefly used to add weight and substance to woollen cloth, on the surface of which they are spread during the process of fulling which incorporates them into the fibre by felting. They are also used to produce a woolly face on waterproof garments and for saddlery. In addition to the shoddy made at the regular shoddy mills a large amount is made in the woollen mills from rags and clippings. Shoddy is used particularly in the woollen manufacture, in the produc-

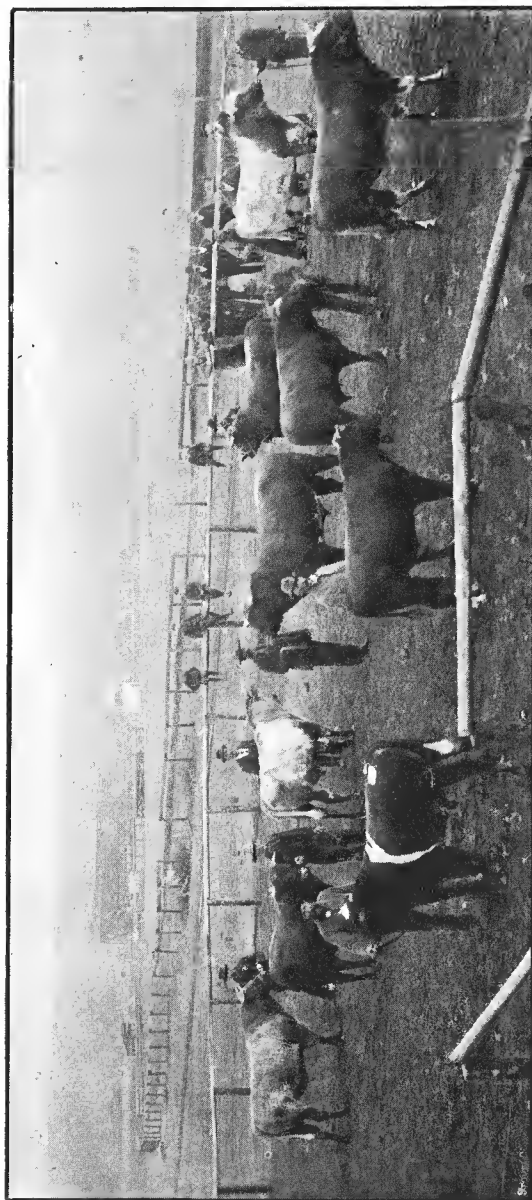
tion of low-grade satinets and other cotton warp goods, in the poorer qualities of overcoatings and cloakings and to impart weight and substance to various kinds of woollen goods.

The effect of the preferential tariff was to enormously increase the importation of British woollens into Canada. It is a significant fact that the amount of shoddy consumed in the United Kingdom annually is estimated at a hundred and thirty million pounds, while the pure wool used does not amount to more than five hundred million pounds. Owing to the enormous duties imposed on foreign rags the shoddy material used in the United States woollen manufactures has been reduced to thirty-four and a half million pounds per annum, with a total manufacture of wool of four hundred million pounds. The comparison is scarcely creditable to British industry. A well known expert is authority for the statement that in a drive of thirty miles around Bradford, England, not one but scores of mills can be pointed out where for every bale of wool used ten bales, and often more, are consumed of shoddy, mungo, stockings and cotton, and that, in what is known as the "heavy woollen district" of Yorkshire, there are dozens of manufacturers who never buy a single bale of raw wool and yet are known and acknowledged as leading manufacturers of woollen goods. This statement has been freely made in public and has also been circulated extensively in the British and Canadian press and has not, so far, been refuted by the manufacturers interested. The importance of the frequent sales of rags of every description, stockings, mungo, etc., despatched from all parts of the British Isles and several continental countries, held at Dewsbury, Batley, Leeds and other centres of the manufacturing districts, would appear to prove the truth of the above assertion.

The Hon. Geo. W. Wallace, of Santa Fe, New Mexico, in an address on "Substitutes for Wool," recites the statement by a commission house in the trade that 90 per cent. of woollen goods contain cotton, and that in 45 per cent. the proportion of cotton is three-fourths; and when, in addition to this cotton, adulterants are used, one ceases to wonder at the depression in the woollen markets and low prices of wool.

The general position of affairs at the present time seems to be that wool goes farther today than it ever did before. Admitting that it is better for those who cannot afford to buy "all wool" goods, that they should be able to purchase cotton goods with even 10 to 15 per cent. of all wool, no fault can be found with the extensive use of wool substitutes. When, however, manufacturers and dealers undertake to sell material containing only a small percentage of wool as "all wool," a fraud is being perpetrated on the public that it behooves the authorities to expose. The question of the sale of textile fabrics was discussed at a meeting of directors of this association in October last and the undersigned was instructed to draft a bill providing for the proper labelling and marketing of such fabrics and to take the necessary steps to have the grievances of Territorial wool growers placed before the Dominion Parliament. In accordance therewith, the following letter has been sent to Mr. Walter Scott, M.P., together with a copy of the draft bill:

At a meeting of the Territorial Sheep Breeders' Association, held at Medicine Hat in the beginning of October last, the question of the demoralised state of the wool market in Canada was discussed, and the conclusion arrived at that the main cause of the low prices which have been paid for wool in the past, was the increasing use of substitutes, such as animal hair, cotton, shoddy, etc., and the undersigned was directed to prepare a draft bill providing for the marking of



GROUP OF SHORTHORNS SOLD AT ASSOCIATION SALE, CALGARY, ALTA., MAY, 1902.

textile fabrics, with a view to showing the consuming public the constituent fibres of every material used in their production. I am particularly directed to point out that the effect of carrying out the intention of the bill would *not* be to lower the retail prices of adulterated fabrics, but to increase the prices of guaranteed "all wool" materials. It was decided by the committee that this bill be submitted to you, as the representative of the most important wool producing district of the West, with the request that you use your influence to have it introduced at the present session of Parliament. I now have much pleasure in enclosing a draft copy of the said bill, containing the provisions that this association feel should be imposed in the interest of Canadian wool growers, for such action as you may deem advisable.

I am aware that objections might be raised to the proposed "Pure Fibre Act" on the score that it is impossible to determine how much wool a certain fabric contains, or how much material has been subjected to a manufacturing process prior to reaching the mill where it was last converted into cloth. Mr. Mansell, of Yorkshire, England, who is a leading breeder and thoroughly understands the subject is, however, my authority for stating that the Bradford Conditioning House can very easily determine what any textile fabric is made of, by actual percentages.

At the third international conference of sheep breeders, held in the Town Hall, Carlisle, England, on the 5th July, 1902, the following resolution was passed:

That this conference is of opinion that the increasing adulteration of woollen goods, and the unscrupulous substitution of inferior materials in the manufacture of so-called woollen goods, demand in the interests of both the consumer and the producer immediate legislative attention; and further, that copies of this resolution, together with copies of Mr. Mansell's paper, be forwarded to the Right Hon. the Minister of Agriculture and the Colonial Premiers now assembled in conference in London.

With a view to throwing further light on this subject I also beg to quote from the proceedings of the International (American) Live Stock Association, at its last convention held at Chicago, the following information in respect to shoddy:

There are several classes of shoddy. The best is made from the sweepings of tailors' shops and the emptying of rag bags in civilized countries. The worst, which constitutes the greater part used in America, is from the rotten, cast-off rags of beggars and the lazar and pest-houses of Europe, having in them all kinds of filth and disease. These are gathered by rag-pickers from the slums and alleys and sent to America by shiploads, where they are purchased by a certain class of manufacturers, who, in order to take the curse off the name, term the stuff "re-used wool fibre." It must be remembered, however, that in most instances, when tearing this shoddy to pieces preparatory to again weaving into cloth, it is found to be so rotten and dead that nothing is produced but dust, and in order to get two ends, so that it can be spun, a minimum portion of wool or cotton is mixed with it in order that it may be held together. The next step after weaving carries it to unscrupulous dealers, who sell this production to labouring men—and, in fact all classes of society—for "pure wool," thus getting for a suit worth but three or four dollars more than three times this amount. To encourage such a fraud is simply putting the lousy rags of European paupers in competition with the sheep and wool-growers of America and elsewhere, and robbing the consumers who wear woollen garments by selling them the stuff under a misrepresentation.

If the foregoing statements are facts, and it is scarcely likely that the American International Live Stock Association would publicly state them unless they were, it can be readily seen that, apart from the fraud and misrepresentation in the matter, there is a considerable source of danger to the public health through infection.

The objections to the proposed bill are rather strongly put by the Textile World, a paper which, judging from its name, has its sympathies mainly with the manufacturers. They state that if the bill becomes law, no fabric containing the slightest proportion of wool will come into the United States, for there is no method known to man of determining how much of the wool in a fabric has been, and how much has not been, subjected to a manufacturing process before it reached the mill where it was last converted into cloth. This, I am informed, is incorrect, as already stated, and the Bradford Conditioning House can readily determine what any fabric is made of by actual percentages.

With this information before you, I feel that you will understand the position of Territorial sheep growers and will do everything in your power to meet their wishes. Should you require more detailed information respecting our grievances, I shall be glad to communicate further with you; or Mr. F. W. Hodson, Dominion Live Stock Commissioner, Ottawa, who understands the situation, will doubtless render you any assistance in his power.

CHAPTER

An act to regulate the sale and provide for the inspection of Textile Fabrics.

Assented to 1903.

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :

Short Title.

1. This Act may be cited as The Pure Fibre Act.

Interpretation.

2. In this Act unless the context otherwise requires—

(a) The term "pure wool" shall mean sheep's wool which has not been previously used in the manufacture of any textile fabric or other goods or products.

(b) The words "woollen goods" shall mean goods or fabrics composed wholly of pure wool.

(c) The words "mixed goods" shall mean all manufactures made in imitation of woollen goods which are not composed wholly of pure wool.

(d) The word "shoddy" shall mean sheep's wool or any other fibre which has previously been used in the manufacture of any textile fabric or other goods or products.

Marking and Labelling.

3. Every manufacturer of textile fabrics shall mark, label or tag such goods in plain printed letters or figures which cannot be detached except by design, and the mark, label or tag shall state accurately the constituent fibres of every material of which such goods are composed and their relative proportions.

4. Every clothier, tailor or person who shall make any textile fabric into clothing, garments or any article whatsoever to be sold as such, shall place firmly upon and attach to each and every garment and article so made a label, tag or tab stating whether the said article or garment is made out of "woollen goods," "mixed goods" or "shoddy."

5. All textile fabrics of every kind and description, including cloths, clothing, and every article manufactured (or in any of the processes or stages of manufacture) imported from other countries, shall be marked, labelled or tagged as provided for in case of manufactures of the same in Canada. The labels, tags or tabs required by this Act if not theretofore affixed, shall be affixed by the owners or importers while the goods are in the custody of the custom house officers and it shall be the duty of such officers to inspect all such goods and see that the proper labels, tags or tabs are affixed; and such goods shall not pass out of the custody of such officers until such labels, tags or tabs have been so affixed.

6. Any person who shall wilfully, recklessly or carelessly mark incorrectly any goods required by this Act to be marked, labelled or tagged so as to show a larger per centum of wool or a smaller per centum of shoddy or other cheaper fibre or material or so as to deceive and mislead the purchaser thereof, shall be guilty of an offence and on summary conviction thereof be liable to a fine of not less than fifty nor more than five thousand dollars.

7. All textile fabrics which have been manufactured or imported prior to the coming into force of this Act and which had passed out of the hands of the manufacturer or importer thereof, the ingredients or component parts of which are not known by the owner or custodian thereof, shall in lieu of the label or marks herein provided be marked by the owner or custodian thereof with a label bearing the words "Manufactured prior to the Pure Fibre Act, composition not known," and for such goods the affixing of such label shall be deemed a compliance with this Act.

Sale of Textile Fabrics.

8. Any clothier, tailor, merchant or other person who

(a) knowingly purchases any textile fabrics which are not properly labelled or marked according to the provisions of this Act:

(b) sells or offers to sell or exposes for sale any textile fabrics that are not properly labelled or marked:

(c) Manufactures into clothing any textile fabrics and sells or offers to sell or exposes for sale such fabrics without being properly labelled or marked shall be guilty of an offence and upon summary conviction thereof be liable to a fine of not less than fifty dollars nor more than one thousand dollars.

9. Any manufacturer or importer of textile fabrics who shall sell, offer to sell, or permit to be sold or removed from the place of manufacture or the

custody of the custom house officers, such fabrics manufactured, or in the process of manufacture, without being properly labelled as required by this Act shall be guilty of an offence and upon summary conviction thereof be liable to a fine of not less than fifty dollars nor more than five hundred dollars.

10. This Act shall come into force on the first day of July, 1904.

Wool Markets.

The wool outlook in the United States appears to be particularly bright at the present time, but, as usual, Territorial growers will scarcely benefit to any appreciable extent by improved conditions of the American market. The following comments by the Breeders' Gazette on the present situation are of interest:

Wool has been advancing in the market for some months, and in the opinion of most of the good authorities it must continue to rise in price for some time to come, if it does not ultimately rest on a permanent level of values considerably higher than that which has bottomed it for years past. The reasons are not hard to find, and when discovered are most convincing. To begin with, Australia has lost 20,000,000 sheep in the last four years, during which time that federation of states has suffered from a drought unprecedented in the history of the world. The flocks remaining, owing to the scarcity of feed and the scantiness of water, have not produced nearly as much wool as has been their want, and altogether the Australian output has been very badly diminished. In South America the loss from the ravages of diseases and drought during the past two seasons is officially stated to be 7,000,000 head of sheep, and the clip from the residue has likewise been shortened greatly. European flocks, even those of the British Isles, are smaller than they have been in decades, and America alone, of all the countries in the known world, shows an increase in sheep and wool. Inversely the consumptive demand has greatly increased. The woollen rag trade that for a time overshadowed the market for the native fleece has ceased to harm or even to serve as a bugaboo, and with all these encouraging factors ranged in a row what is to prevent the further advance of wool? During the three days ending Nov. 12 one cent was added to the standard price in the Boston market.

Another factor which has a tendency to regulate the price is, that when wool gets beyond a certain figure substitutes are more largely used, which again decreases the wool requirements correspondingly. High wool means high priced clothing, and while the consumer is willing to pay augmented prices for his garments, the wool grower never appears to get the proportionate value for his material.

While wool growers are entitled to a great deal of sympathy, comparisons with United States quotations and prices paid at country points there are hardly fair. As a rule, United States quotations are on the basis of scoured wool, and it is a well known fact that an average of 60 per cent of the total weight of the greasy fleece is lost in that process. A fair comparison would be the Territory wool produced in the State of Nevada, which, in greasy fleece, brings very little more than our Territory wool to flockmasters. Another point of difference is that the bulk of the Pacific and western wools of the United States are of much finer grades than our cross-bred wools, being largely composed of merino.

All sorts of solutions of the western wool difficulty have been advanced, the most popular being the establishment of woollen mills throughout the West, thus creating local industries that would consume the raw material on the spot. For many reasons such undertakings have not in the past been successful. One great drawback to local woollen manufactories is the difficulty of obtaining skilled operators at sufficiently low wages to leave a fair margin. The argument that woollen mills ought to be established in the centres of wool producing districts is one that is rapidly going out of date, owing to the fact that wool has ceased to be the chief raw material of woollen mills! . However, in the State of

Oregon the industry seems to be in a fairly flourishing condition. The manufacturing establishments there have increased from six to eleven during the last ten years. While it is questionable whether large woollen mills can be operated more advantageously in the West than in Eastern Canada, it would appear that there is an opening on our western prairies for one or two scouring establishments. Four of these establishments have been erected in the State of New Mexico, the average output of wool of each being about one and a half million pounds per annum.

I am pleased to be able to report that during the year a woollen mill has been erected in the town of Edmonton by Mr. N. J. Webster. The building is a three-storied frame mill of fairly large proportions, containing an entire plant for the treatment and manufacture of woollen goods. Some difficulty arose in getting machinery installed owing to a railway accident which destroyed a portion thereof in transit. A large amount of wool has been picked and carded, and doubtless the mill is in running order by this time. The mill contains five spinning frames, two being designed for weaving blankets and two for making flannel; an extra spinning frame is kept in readiness on the third floor in case of emergency. It is expected that all kinds of cloths, flannels and blankets will be successfully manufactured there.

I attach herewith a statement of the receipts and expenditures for the year, duly audited.

Respectfully submitted,

(Signed) CHAS. W. PETERSON,
Secretary and Managing Director.

APPENDIX C.

TERRITORIAL HORSE BREEDERS' ASSOCIATION.

Officers for 1902-3.

President.....	W. R. Stewart, Meadow Creek, Alta.
First vice president ..	D. H. Andrews, Crane Lake, Assa.
Second vice president	John A. Turner, Calgary, Alta.
Secretary treasurer and Manag- ing director.....	C. W. Peterson, Calgary, Alta.
Breed directors:	
Clydes	G. Mutch, Lumsden, Assa.
Shires	David Thorburn, Davisburg, Alta.
Hackneys	John R. Thompson, Calgary, Alta.
Thoroughbreds	E. J. Swann, Dewdney, Alta.
Standardbreds	J. P. Creamer, V.S., Qu'Appelle, Assa.
Coach breeds	R. G. Robinson, Calgary, Alta.
Percherons	Geo. Lane, Calgary, Alta.
Ex officio directors:	
Hon. Dr. Elliott.....	Commissioner of Agriculture, N.W.T.
F. W. Hodson.....	Dominion Live Stock Commissioner.
Auditors:	
Captain D'Eyncourt.....	Calgary, Alta.
D. H. Andrews.....	Crane Lake, Assa.
Executive committee:	
W. R. Stewart.....	Meadow Creek, Alta.
D. H. Andrews.....	Crane Lake, Assa.
John A. Turner.....	Calgary, Alta.
C. W. Peterson.....	Calgary, Alta.

Members of the Territorial Horse Breeders' Association 1902.

NAME.	ADDRESS
Andrews, D. H.....	Crane Lake, Assa.
Aspinall, A.....	Innisfail, Alta.
Adams, E. D.....	Calgary, Alta.
Anderson, V.....	Calgary, Alta.
Anderson, G. B.....	Indian Head, Assa.
Anderson, J. R.....	Deputy Minister of Agriculture, Victoria, B.C.
Bunt, W.....	Pincher Creek, Alta.
Burn, H. S.....	Gillingham, Alta.
Burn, R. H.....	Gillingham, Alta.
Beddinfeld, Frank	Pekisko, Alta.
Blake, John S.....	Nanton, Alta.
Banister, H.....	Davisburg, Alta.
Creamer, Dr. J. P.....	Qu'Appelle Assa.
Craig, John R.....	Meadow Creek, Alta.
Clark, John, Jr.....	Crowfoot, Alta.
Christie, W. L.....	High River, Alta.
Craign, R. P.....	Calgary, Alta.
D'Eyncourt, Capt.....	Calgary, Alta.
Douglas, W. A.....	Maple Creek, Assa.
Dobbie, W. R.....	Pincher Creek, Alta.
De Malherbes, R. ..	Millarville, Alta.

Douglas, Thos.	De Winton, Alta.
Erkford, A. H.	High River, Alta.
Emerson, Geo.	Pekisko, Alta.
Fraser, J. A. W.	Jumping Pond, Alta.
Fulton, R. S.	Moose Jaw, Assa.
Flewelling, H.	Lacombe, Alta.
Forester, F. W.	Pincher Creek, Alta.
Greeley, H. A.	Maple Creek, Assa.
Gow, A.	Graburn, Assa.
Goddard, G. E.	Calgary, Alta.
Godsal, F. W.	Pincher Creek, Alta.
Gibson, R. M.	Lacombe, Alta.
Herron, John	Pincher Creek, Alta.
Holles, Jos.	Kutawa, Assa.
Heaton, Geo.	Pincher Creek, Alta.
Hughes, Albert	Medicine Hat, Assa.
Hays, John W.	Calgary, Alta.
Herchmer, Lieut. Col.	Calgary, Alta.
Hull, W. R.	Calgary, Alta. (Box 165.)
Harrington, Dr. J. B.	Lacombe, Alta.
Hills, W. F.	Lacombe, Alta.
Hoadley, Geo.	Okotoks, Alta.
Inglis, R. C.	Beaver Dam, Alta.
Jones, J.	Pincher Creek, Alta.
Kerfoot, W. D.	Cochrane, Alta.
Knight, J. W.	Raymond, Alta.
Knight, Raymond	Raymond, Alta.
Keffer, A. E.	Lethbridge, Alta.
Leeds, J. E. M.	New Oxley, Alta.
Leech, S. H.	Maple Creek, Assa.
Laycock, Thos.	Calgary, Alta.
Linton, T. A.	Moose Jaw, Assa.
Mutch, A. & G.	Lumsden, Assa.
Moodie, Wm.	Millarville, Alta.
Mansen, John	Didsbury, Alta.
Morrow, A. G.	Grenfell, Assa.
Millar, M.	Millarville, Alta.
Mead Bros.	Pincher Creek, Alta.
McKenzie, W.	Airdie, Alta.
McAlpine, Hugh	Carstairs, Alta.
McDougall, D.	Morley, Alta.
McKay, A. S.	Calgary, Alta.
MacKay, Angus	Indian Head, Assa.
McCarty, Chas.	Raymond, Alta.
McDermid, M.	Nanton, Alta.
Macfarlane, J. M.	Moose Jaw, Assa.
Pearse, S.	Maple Creek, Assa. (East end P.O.)
Pollock, R.	Maple Creek, Assa.
Perrey, L. N.	Cardston, Alta.
Phillips, W. F.	Millarville, Alta.
Principal, Rev.	Dunbow, Alta. (Industrial School)
Quick, G. W.	Maple Creek, Assa.
Robertson, Thos. W.	High River, Alta.
Robinson, R. G.	Calgary, Alta.
Riley & Sons	Calgary, Alta.
Raikes, H.	Pine Lake, Alta.
Rawlinson, C. M.	Calgary, Alta. (Box 20.)
Stewart, W. R.	Meadow Creek, Alta.
Swann, E. J.	Okotoks, Alta.
Stewart, D. R.	Edmonton, Alta.
Sheppard, H. N.	High River, Alta.
Sanders, C. W.	Maple Creek, Assa.
Simpson, J. A.	Innisfail, Alta.
Savory, H. W.	Cardston, Alta.
Shaw, H.	Nanton, Alta.
Thorburn, D.	Davisburg, Alta.
Turner, John A.	Calgary, Alta. (Box 472)
Thorn, W. B.	High River, Alta.
Thompson, Thos.	Gladys, Alta.
Thompson, J. R.	Calgary, Alta.
Turner, Robert	Millarville, Alta.

Walker & Creighton	Cochrane, Alta.
Watson, F. B.	Lacombe, Alta.
Wiley, J. D.	Maple Creek, Assa.
Wade, Hy.	Toronto, Ont., Secretary Ontario Horse Breeders' Ass'n.

Agricultural Societies Affiliated with the Territorial Horse Breeders' Association 1902.

NAME.	ADDRESS.
Broadview Agricultural Society	Broadview, Assa.
Central Saskatchewan Agricultural Society	Saskatoon, Sask.
Fairmede Agricultural Society	Fairmede, Assa.
Fort Qu'Appelle Agricultural Society	Qu'Appelle, Fort, Assa.
Innisfail Agricultural Society	Innisfail, Alta.
Lacombe Agricultural Society	Lacombe, Alta.
Lorne Agricultural Society	Prince Albert, Sask.
Maple Creek Agricultural Society	Maple Creek, Assa.
Moose Jaw Agricultural Society	Moose Jaw, Assa.
Moosomin Agricultural Society	Moosomin, Assa.
Olds Agricultural Society	Olds, Alta.
Pincher Creek Agricultural Society	Pincher Creek, Alta.
Regina Agricultural Society	Regina, Assa.
Red Deer Agricultural Society	Red Deer, Alta.
South Eastern Assiniboia Agricultural Society	Carievale, Assa.
South Qu'Appelle Agricultural Society	Qu'Appelle St'n, Assa.
Wolseley Agricultural Society	Wolseley, Assa.
Whitewood Agricultural Society	Whitewood, Assa.

Honorary Members.

Geo. H. Greig	Secretary Manitoba Horse Breeders' Ass'n, Winnipeg.
Hy. Wade	Secretary Ontario Horse Breeders' Ass'n, Toronto.
J. R. Anderson	Deputy Minister of Agriculture, Victoria, B.C.

REPORT OF THE SECRETARY.

MR. CHAIRMAN AND GENTLEMEN,—I herewith beg to submit my third annual report on the horse raising industry of the Territories and the transactions of the Territorial Horse Breeders' Association for the year 1902.

REMOUNT PURCHASING COMMISSION.

Last spring advice was received from Lieut.-Colonel Dent, A.A.G., to the effect that a remount purchasing commission under his command would proceed to the West early in the summer in order to secure horses for use in the South African campaign. Col. Dent solicited the co-operation of this association and left all local arrangements respecting the fixing of dates, advertising, etc., entirely in the association's hands. The matter was brought up at the last general meeting and referred for action to the executive committee. The following gentlemen were appointed to assist the commission in its work: J. R. Thompson, Calgary; E. J. Swann, High River and Cochrane; W. R. Stewart, Macleod and Pincher Creek. and H. A. Douglas, Maple Creek.

Major the Hon. Ormsby Gore, Major W. E. Fell and Veterinary Surgeon Thomas Bowhill constituted the commission. Almost on the very day the commission commenced its labours the glad tidings of the cessation of hostilities were received. This was doubtless followed by

instructions from headquarters to limit the purchasing of remounts, and, although the points advertised were well attended, only a very few horses were purchased. Possibly the less said about the final result of the efforts of this commission the better. One factor which operated adversely against a large attendance of sellers was the serious floods that occurred at the time, destroying bridges and rendering roads impassable. It is quite safe to say that had this not occurred there would have been more horses to select from, although the sum total of horses purchased would probably have been about the same.

Remount Purchasing Depots.

During the year the association has been active in bringing the advantages of the Territories for the production of remounts before the War Office officials. Ian Malcolm, Esq., a member of the British House of Commons, was furnished with full particulars regarding the Territories as a horse producing country and he kindly brought the matter up in the British House. A letter was recently received from the same gentleman, in which he asked to be supplied with further information in order that he may again press the matter upon the proper authorities. This has been sent. A very interesting little pamphlet was also issued by Major Fell based on his experience in the Territories as a member of the last remount purchasing commission. In the said pamphlet he outlines a complete scheme for the erection and maintenance of a horse breaking depot in the vicinity of Calgary designed to handle a thousand horses per annum. It is understood that this pamphlet was quite extensively circulated in Great Britain and will doubtless serve to direct attention to this country as a field for securing military remounts.

It had been confidently expected that the effect of the Boer war would have been an immediate increase in the mounted branches, not only of the British but of the continental armies. The report of the Court of Inquiry on the Administration of the Army Remount Department was, therefore, awaited with a great deal of interest. The following is a circular recently issued by the Remount Department, which I think will have the effect of dispelling any illusions on the subject that may have been entertained by Territorial breeders in respect to obtaining a remunerative market for remounts for the British army. I would particularly direct attention to the fact that the estimated number of horses required annually is 2,500, which is precisely the number the Remount Department was authorised to purchase annually before the outbreak of the Boer war. Out of these 2,500 horses, 140 only will be mounted infantry cobs.

Purchase of Army Remounts.

The class of horses required for the army may be generally described as follows:

Ages: Peace, 4 off to 6 years. War, 6-10 years.

Heights: Cavalry, 14'3 to 15'3; R.A., 15'2 to 3; M.L., 14'2 to 15'3; Transport, 15.3.

Chargers should not be under 15 hands.

Colours: Whites and gray are only required for special purposes. Other very light coloured horses are not accepted.

Bays and browns are preferred, but chestnuts and blacks will be accepted.

Entire or unmanageable horses are not admissible.

Horses with short docks will not be accepted.

Soundness in eyes, wind and limb essential; no stale, upright, or overshooting joints, and no curby hocks admitted,

The class required is a deep, short-legged, short-backed, good-barrelled horse of the hunter stamp, with substance and quality, true action, and going quite clear of the joints.

The same description generally applies to cobs.

Artillery, Engineers and A.S. Corps should be good quality draught horses. Numbers required annually in normal times of peace—2,500, as under:

Cavalry	1,000
R.A., R.E. and A.S.C.	1,360
M.I.	140

In normal times of peace there are no specified dates for the assembly and inspection of horses.

Farmers having horses for sale should apply to the Inspector-General of Remounts, War Office, forwarding a description of their horses.

Forms to fill in the description of horses for sale and any other details will be furnished on application to the Inspector-General of Remounts,

War Office, London, S.W.,

November 1st, 1902.

The future remount requirements of the British army having been limited as stated above, when the political situation in Great Britain is taken into consideration, with English and Irish breeders clamouring for the patronage, the outlook for Canada, as far as one can judge at present, is decidedly disappointing. Even granting that one-half of the remounts required in the future will be purchased in the colonies (1,250) by the time this number is divided up between Australia, New Zealand, Canada, and possibly other colonies, and Canada's share is sub-divided amongst the various provinces, it will be clear to any thinking person that the possibilities of this market are not such as should entice our breeders to devote any attention to the production of this class of a horse, more especially as the type required seems to be an ever changing one. Of course, there is a probability of a market being available in continental European countries, but the situation politically under constitutional government is the same everywhere. The purchasing of horses for the army is patronage in the hands of the government which is claimed by home breeders, and a government is seldom able to withstand the pressure even in the face of the fact that better horses at lower prices can be purchased elsewhere.

The following report of a speech made by Colonel Dent, who was in command of the Canadian Remount Commission during the Boer war, at a meeting of the Yorkshire Union of Agricultural Clubs, is of particular interest to Territorial breeders.

In addressing the meeting Colonel Dent stated that he did so as a cavalry officer of eighteen years service, and as a landlord. Two questions, he said, presented themselves for enquiry. First, will it pay farmers to breed them under the present prices and conditions, and, secondly, will it pay the War Office to alter those prices and conditions? It was difficult to define a remount, as the army really required five different classes of horses. The cavalry required a stout, active horse from 15 hands 2 inches to 16 hands, with short legs, good feet, best back, loins and ribs, with a capacity for thriving on hard work and short rations, capable of getting about over a rough country with ease to itself under a heavy weight, and at a fair pace. Then there was the horse artillery horse, which was of much the same type, but heavier. The field artillery horse was of the London "bus type," an active, quick animal, which could manœuvre when drawing the heavy weight of the gun and limber behind them, and gallop short spurts into action. The fourth type was the mounted infantry cob, which should be stout and active, but not more than 14 to 15 hands, and, lastly, the army service corps required almost every type from the riding horse down to the light cart horse, or what was ordinarily known as a van horse, and also mules. Which type did they propose to breed? Would it pay them to breed good four-year-olds to sell at £40 per head or at most £45? He ventured to think that it would not pay them to do so. Whatever standard they sought to breed to, they would be sure to have some "misfits," horses which, though perfectly sound, did not come

in quality, size, or action up to the standard. If they tried to breed first-class hunters or harness horses or ponies it would probably pay them to take trooper prices for the "misfits," but if they set out to breed troopers their "misfits" would be difficult to sell, as the market for good horses would be maintained, but the motor and the electric tram had greatly restricted the market for inferior horses.

From the War Office point of view he did not think it would pay them to alter their scale of prices. The ordinary peace requirements were 2,500 per year for England, but Sir Walter Gilbey had estimated it would be 4,000 in future. He dissented from this view, because several cavalry regiments and batteries of artillery would be kept in South Africa for some time, and he was of opinion that no considerable body of mounted infantry would be maintained in England. We must always go abroad for our supplies in war time, and one lesson we should learn was to keep in touch with horses bred in other countries and the colonies. Mr. Brodrick had decided that in future 500 Canadian remounts should be bought in that colony yearly, and that would reduce the number required from England each year. He saw that morning that Mr. Hanbury had been telling the farmers he should advise the War Office to buy young, unbroken horses at three years to three and a half, and in another sentence the Minister for Agriculture said the War Office had decided to buy them at a later age. The two statements did not tally, and he could not understand his meaning. Unless the Government were going to establish remount farms or depots, to which to send the three-year-olds to be trained, he did not see how they were going to buy three-year-olds, and then the price to the nation would be raised by the time the horse entered the ranks some £15 to £20 per head, presuming they would buy the three-year-olds at the trooper price of £40. He did not see, as a taxpayer, the necessity for remounts to cost the nation any more than now.

The speaker's conclusions were that the system of buying from agents was better and more economical than buying direct from farmers. He had left the question of encouraging horse breeding out altogether, because the money voted for army purposes should not, in his judgment, be spent in aid of any particular industry.

Colonel Dent, in his address, referred to the fact that Mr. Brodrick had decided that 500 Canadian remounts should be purchased annually. This statement does not tally with a statement made by Mr. Hanbury, President of the Board of Agriculture, at Edinburgh, according to which all remounts will in the future be bought in the United Kingdom, 1,000 of the number required coming from Ireland. It had been expected that these horses would be purchased at three and a half years of age, but Mr. Hanbury states that such would not be feasible under present conditions.

As intimated above, a court of inquiry was granted by the Commander-in-Chief at the request of General Truman, Inspector General of Remounts; its object was to report upon the administration of the Remount Department since his appointment in January of 1899. A series of questions were drawn up on which the court was asked to report and these practically covered every point connected with the system of purchase, shipment and management of horses as long as they were in charge of the Department. From December, 1899, to January, 1902, the Remount Department sent out 216,863 horses and cobs and 94,030 mules. Of these 60,980 horses and 12,083 mules were purchased in the United Kingdom; in addition to the above 126,372 horses and 30,699 mules were bought in South Africa. These figures do not include the remounts supplied the Yeomanry, which were purchased by a special committee.

Apparently the Commonwealth of Australia has also entered the lists for supplying remounts to the imperial army.

During 1900 the Commonwealth exported 30,083 horses exclusive of inter-state trade, and of this number 24,506 were intended for army remounts. The export last year from New South Wales was 11,584 and from Victoria 11,570. Queensland contributed 6,343 to the total, while South Australia exported 125, Western Australia 423, and Tasmania 38. Of the animals intended for remounts the various states of the Common-

wealth exported the following numbers: New South Wales, 9,402; Victoria, 10,269; Queensland, 4,434; South Australia, nil; Western Australia, 401, and Tasmania nil. Up to August of last year, the Imperial Remount Commission in Australia had purchased 6,734 horses, New South Wales contributing 5,136, Queensland 1,530, and Victoria 68. 3,104 of these animals were intended for cavalry purposes, 1,876 were mounted infantry cobs, and 1,754 draught horses, and the cost per head, including all incidental expenses up to the time of shipping, was as follows: draught, £20; cavalry, £15; mounted infantry cobs, £10 10s. It is argued that it would be in the interest of the Imperial Government to organise remount depots throughout Australia in order that a large number of horses might be at disposal at any time. The price fixed at which horses can be purchased there is £10 per head. It is evident that the Australians can underbid the Territories in this class of horses.

Market Conditions.

I am pleased to be able to congratulate Territorial horse breeders upon the favourable condition of the market for horses during the past year. While the principal demand has been for heavy draught horses, the high prices of these animals has had a favourable effect on the value of practically all classes of horses. The following statement shows comparisons between imports and exports of horses, to and from the Territories, for the last two years.

Exports.

	1901.	1902.
To British Columbia.....	297	444
To Manitoba, Eastern Canada and Great Britain (including remounts).....	4,045	4,416
Total.....	4,342	4,860

Imports.

From Eastern Canada.....	1,391	3,897
From the United States.....	4,073	14,822
Total.....	5,464	18,719
Imports over exports.....	1,122	13,859

It will be noticed that the imports exceed the exports to a very considerable degree, which is particularly due to the heavy importation from the United States. The large immigration of the past year, coupled with the high mortality amongst horses, has had the effect of draining the country of work teams, in spite of the somewhat sluggish condition of the British Columbia market, which has in the past been a fair customer. With the enormous immigration that is expected, which, in fact, is already in sight, there will be an even better market for work horses all through Manitoba and the farming portions of the Territories, during the present than in the past year. The recent favourable seasons have also had the effect of largely encouraging the bonanza principle of wheat farming, and team labour has been so scarce that farmers simply

could not afford to have their mares served at the risk of laying them off work for even a short period and much preferred to purchase what additional horses they required.

Importations of Horses from the United States.

The following statement shows the importation of horses into Manitoba and the Territories for the years 1901 and 1902, together with the total value and average value per head:

Port of entry.	No. imported.		Value.		Average value per horse.	
	1901.	1902.	1901.	1902.	1901.	1902.
Winnipeg	2,144	5,526	\$ 67,749	\$283,108	\$ 31.60	\$ 51.21
Brandon	1,006	934	59,947	185,243	59.59	197.26
Regina		1,002		35,587		35.51
Lethbridge	2,806	9,064	60,902	167,569	21.71	18.48
Calgary	1,267	4,756	41,675	106,880	32.89	22.47
Manitoba & Territories ..	7,223	21,282	230,273	778,387	31.88	36.57

An examination of the above figures will show that there is an apparent increase in value per head last year over the year before, the 1901 average being \$31.88 and the 1902 \$36.57. Under ordinary circumstances this might be looked upon as a step in the right direction, but, unfortunately, there is a very simple explanation of this apparent improvement. The following statement, showing further details of the 1902 importations, puts a different phase on the situation :

	No.	Duty paid.	No.	Duty free.
Winnipeg	5,453	Ave. \$34.45 \$187,863	73	Ave. \$1,304.72 \$95,245
Brandon	806	Ave. \$51.74 \$41,703	128	Ave. \$1,121.40 \$143,540
Regina	985	Ave. \$30.44 \$29,987	17	Ave. \$329.40 \$5,600
Lethbridge	9,063	Ave. \$18.43 \$167,069	1	Ave. \$500
Calgary	4,723	Ave. \$20.82 \$98,380	33	Ave. \$257.87 \$8,500
	21,030	\$525,002 Ave. \$24.96	252	\$253,385 Ave. \$1,005.49

From the above statement it would appear that 252 purebred horses at a total value of \$253,385 were imported *duty free*. These animals were practically all stallions, the remaining 21,030 horses only averaged \$24.96 a head, which is some \$7.00 per head below the average valuation of 1901, so that, instead of being able to record an improvement in this

matter I am compelled to admit that the present condition of affairs is even more unsatisfactory than it has been in the past.

In spite of the persistent and vigorous representations which have been made by nearly all western breeding organisations, as well as by the Ontario Horse Breeders' Association, with a view to inducing the Dominion Government to impose a reasonable minimum valuation upon horses imported into Canada from the United States, the authorities have not as yet seen fit to take any steps in the matter. The Canadian West is being flooded with a class of horses that is already too plentifully represented in the country at the present time, and which are bought at slaughter prices on the overstocked ranges of Montana, and the effect has been to completely demoralise the limited market for the low grade animals and misfits produced by the western breeders. The creation of a glut in that class of horses has also naturally been a disturbing factor in the values of horses of the better class.

It might be here stated that our Federal Government need have no scruples in respect to imposing the measure of restriction asked, as most decidedly none have been shown by the United States Government in framing its regulations dealing with the importation of Canadian horses. To put the matter in a nutshell, the average value of the 21,000 horses brought into Canada last year was a few cents less than \$25.00; in other words, under the Canadian custom duty of 20 per cent. a duty per head of \$5.00 is levied or a total of \$105,000.00. If the same horses had been bred in Canada and were exported to the United States, they would have been dealt with at the border on the basis of a minimum valuation of \$100.00 per head, and a duty of 33 per cent. would have been levied on them, the total amount collected being about \$700,000.00. In other words, Canada admits for \$5.00 an animal that the United States would charge \$33.00 for. Comment seems unnecessary.

A matter in which our breeders are interested and which calls for some remarks is the number of Percheron stallions brought into the West from the United States for breeding purposes. In this connection the following clipping from a Pacific coast weekly is of interest:

Fraudulent Horse Pedigrees.

William Penn Nixon, collector of customs, in a report to the treasury and agricultural departments, charges S. D. Thompson with defrauding the United States and the horsebreeders of the country of many thousands of dollars in the past ten years. He is said to have done this by an elaborate system of bogus pedigrees furnished through the American Percheron Horse Breeders' Association at 503 Tacoma block, Chicago. Under Thompson's management ordinary short-bred stock is alleged in the report to have been imported, furnished with manufactured pedigrees, and sold for fancy prices and without payment of the 30 per cent. duty, which is waived on imported stock for breeding purposes where three generations of ancestors can be shown. Inasmuch as 30,000 head of horses are said to have been imported last year alone customs officials conjecture that the fraud, if one can be shown to have been perpetrated, was of a wholesale character.

It may be here mentioned that scores of Percherons have been sold in the Territories accompanied by certificates signed by Mr. Thompson, the gentleman above alluded to. I have, however, called the attention of the customs authorities to the irregularities charged against Mr. Thompson, so that American Percheron pedigrees may be closely scrutinised in order that worthless scrubs furnished with pedigrees by the accommodating Mr. Thompson may not be palmed off on the unsuspecting stallion syndicates of Western Canada.

In the matter of the free interchange of purebred stallions between Canada and the United States we find again that the attitude of Canada is in marked contrast to that of the United States.

Although a number of enterprising importers and breeders of purebred stallions in the Territories are being severely injured by the wholesale importation of studs from the United States, these men are sufficiently public spirited to welcome improved stock wherever it may hail from. We find, however, that while the Canadian North-West has been flooded by American purebred stallions, and American stallions that are supposed to be purebred, of more or less merit, every obstacle that human ingenuity could invent has been placed in the way of the very limited exportation of stallions from Canada into the States. The case of Mr. H. F. Page, of Mission City, B.C., who was compelled to pay \$1,000.00 on ten Percheron horses exported to the States *via* Sumas, Washington, is instructive. The collector of customs ruled that, as these horses were imported for *sale* and not for *breeding purposes*, they did not comply with the requirement under which such horses can be brought in free of duty. While undoubtedly they were entitled to free entry, according to the accepted interpretation of the law on both sides of the line, the point brought up by the customs collector was sustained by the United States Treasury Department. The effect might be salutary if the Canadian customs authorities could see their way clear to arrive at similar convenient interpretations.

Stallion Show.

At a meeting of the executive committee it was decided to organise a spring show of purebred stallions in conjunction with the auction sale of purebred cattle at Calgary, held under the auspices of the Territorial Purebred Cattle Breeders' Association. The following rules were adopted.

Rules Governing Purebred Stallion Show.

1. The management will be under the control of the executive committee of The Territorial Horse Breeders' Association.
2. Entries shall be limited to stallions registered in recognised stud books and owned by members of this association residing within the Territories. Every entry must be made in the name of the *bona fide* owner of the animal.
3. A fee of one dollar will be charged for each entry which must accompany the application.
4. If a sufficient number of entries are received by the secretary prior to the 10th of March they will appear in catalogue form. Entries positively close on the 1st of May.
5. The breed section will be as follows: Light horses: (1) thoroughbreds, (2) standardbreds, (3) hackneys, (4) all recognised coach breeds. Heavy horses: (1) clydes, (2) shires, (3) percherons, (4) suffolk punch.
6. The classes in all breeds except clydes will be as follows: (1) three-year-olds and over, (2) two-year-olds, (3) yearlings. In clydes there will be a class for three-year-olds and one for four-year-olds and over, in addition to (2) and (3).
7. First and second prizes will be offered in each class, and third prizes where the entries exceed five. Suitable championships for the various breeds will also be given. All prizes will take the form of silver plate, according to winner's selection from catalogue furnished by the association.
8. Programme and prize list will be issued prior to the date of the show.
9. No unsound horse will be awarded a premium.
10. The age of stallions will be computed to the first of January.
11. Every care will be exercised by the management to prevent injury to or loss of property, but the association will not be in any way responsible for whatever loss or damage occurs. All persons entering stallions for competition must assume the entire risk during transit and while on the grounds.

12. The association will endeavour to arrange for free transportation of horses entered from outside a radius of 30 miles from Calgary, if a sufficient number of entries can be secured from any point to justify chartering a stable car.

The judging was performed by Mr. Robert Miller, of Stouffville Ont., who placed the awards in a most satisfactory manner. The following is the list of donors and prize winners in the various events :

Donors of Plate and Prizes for Purebred Cattle and Stallion Show.

P. Burns, Calgary	\$ 100 00
Imperial Bank, Calgary	(silver plate) 25 00
Bank of Montreal, Calgary	(silver plate) 25 00
Union Bank, Calgary	(silver plate) 25 00
Molson's Bank, Calgary	(silver plate) 20 00
Hudson's Bay Company, Calgary	(silver plate) 25 00
Great West Saddlery Company, Calgary	(silver plate) 25 00
Calgary Brewing & Malting Company, Calgary	(silver plate) 25 00
I. S. G. Van Wart, Calgary	(silver plate) 25 00
Alberta Hotel, Calgary	(silver plate) 25 00
Royal Hotel, Calgary	(silver plate) 25 00
W. H. Cushing, Calgary	10 00
Queen's Hotel, Calgary	10 00
L. W. Doll, Calgary	(cup) 10 00
A. McBride & Co., Calgary	10 00
Parslow & Hamilton, Calgary	10 00
Calgary Hardware Company, Calgary	10 00
Calgary Saddlery Company, Calgary	10 00
Copas & Emerson, Calgary	10 00
R. B. Bennett, M.L.A., Calgary	5 00
G. E. Jacques, Calgary	5 00
Neilson Furniture Company, Calgary	5 00
C. F. Comer & Co., Calgary	5 00
Skinner & Miquelon, Calgary	5 00
John Sharples, Calgary	5 00
Calgary Wine & Spirit Company, Calgary	5 00
Commercial Hotel, Calgary	5 00
Calgary Furniture Company, Calgary	5 00
T. A. Hatfield, Calgary	5 00
Manarey & Irwin, Calgary	5 00
R. C. Thomas, Calgary	5 00

NAMES OF PRIZE WINNING HORSES AND OWNERS. FIRST ANNUAL SPRING STALLION SHOW CALGARY, MAY 14, 1902.

COACH BREEDS.

Any Age.

- 1st. Paladino No. 2186.....G. E. Goddard, Cochrane.
 2nd. Cazique Imp. 949.....R. S. Robertson, Calgary.

STANDARD BREEDS.

Three Years and Over.

- 1st. Bob Kirk No. 23309.....W. R. Stewart, Meadow Creek.
 2nd. Eustace No. 10541.....T. Douglas.
 3rd. Star Line No. 25919.....J. A. Simpson, Innisfail.

Two Years.

- 1st. Jack Stewart 905 C.H.R. W. R. Stewart, Meadow Creek.

HACKNEYS.

Three Years and Over.

- 1st. Blackfoot No. 77 J. R. Thompson.
 2nd. Pioneer No. 65 J. Clark, Jr., Crowfoot.
 H.C. Woodland Agility R. G. Robinson, Calgary.

CLYDESDALES.

Four Years and Over.

- 1st. Balgregan Hero (8846) R. G. Robinson, Calgary.
 2nd. Macclinker's Heir [2446] H. Banister, Davisburg.
 3rd. Prince Lynedock [2381] J. Clark, Jr., Crowfoot.
 4th. Prince Grandeur [2627] R. G. Robinson, Calgary.
 H.C. Gold No. 2111 Robt. Turner, Millarville.
 C. Enterprise [2439] R. G. Robinson, Calgary.

Three Years.

- 1st. Royal Briton J. A. Turner, Calgary.
 2nd. Donald McQueen [2845] J. A. Turner, Calgary.

Two Years.

- 1st. Matchless [2846] J. A. Turner, Calgary.

Yearlings.

- 1st. Marquis of Bute Wm. Moodie, DeWinton.

SHIRES.

Any Age.

- 1st. Bahallion Vulcan No. 16502 A. J. McArthur, DeWinton.

CHAMPIONSHIP.

Best Heavy Draught Stallion, Any Breed or Age.

- Activity [2438] J. A. Turner, Calgary.

Compensation for Horses Killed on Railways.

During the year a communication was received from the Western Stock Growers' Association, asking this association to consider a schedule submitted by the Canadian Pacific Railway Company for compensation for horses killed on that company's lines. The matter was discussed by the executive committee, and it was decided not to accept the prices



CHAMPIONSHIP SHROPSHIRE AT THE MEDICINE HAT SHEEP SALE, 1902.

offered as it was felt there would be too much difficulty about properly classifying horses, and also that the individual owner could probably in the average case make more satisfactory arrangements with the company than if he accepted settlements on the basis offered.

Legislation.

At the last annual meeting a motion was submitted by Dr. J. P. Creamer, of Qu'Appelle, urging upon the Territorial Government to pass legislation to restrict the use of grade stallions, recommending that all stallions standing for service for profit or gain should be registered in the Territorial Department of Agriculture and that the fee be placed at \$5.00 for purebred and registered stallions and \$100.00 for stallions not eligible to registration in a recognised stud book. The matter was laid before the Territorial Government and it is understood that legislation will be introduced at the forthcoming session of the Legislative Assembly to meet the views of breeders as far as it has been found practicable so to do.

The present Ordinance respecting the registration of stallions does not make registration compulsory. Any purebred stallion may be licensed upon payment of a fee of \$5.00 in return for which the stallion owner has a lien upon the colt of any mare served by his horse, upon complying with certain legal formalities. In some countries governments go a step further and subject stallions to veterinary inspection before a licence is issued, and the licensing of stallions is made compulsory. It is a question just how far a government is justified in going in regard to imposing restrictions upon the breeding operations of the private individual. In France, for instance, such restrictions are justified on the grounds that an immense standing army is maintained and it is a matter of national importance that a plentiful supply of serviceable horses should be available in case of war. No such situation exists in Canada. On the other hand, it cannot be denied that a serious hardship is inflicted upon owners of high class stallions who come into unfair competition with scrub horses, provided for the occasion with a lengthy pedigree meaningless to those who make a study of the subject, but fairly convincing to the ordinary farmer not conversant with pedigree lore. Even if the Government can only see its way clear to insist upon due publicity being given of the actual breeding of each stallion standing for public service a very important step will have been gained. The following statement, showing the breeding of all stallions standing for service in the Territories during the past year, furnishes ample food for reflection. Apparently the number of grade horses exceeds that of the purebred. Evidently it is high time the matter was dealt with by legislation.

Purebred and Registered Stallions.

Standardbred	65
Coach	14
Cleveland bays	3
Hackneys	22
Thoroughbreds ...	44
Percherons	52

Suffolk Punch	2
Shires	34
Clydes	309
Total	545

Grade Stallions.

Light Draught, including grades of the Hackney, Coach, Standardbred and Thor- oughbred breeds.....	140
Heavy Draught, including grades of the Clyde, Shire and Percheron breeds.....	406
Total	546

Stallion Syndicates.

A report upon the horse situation in the Territories during the past year would scarcely be complete without some reference to the "Syndicate" stallion. The *modus operandi* is as follows: The promoter, who must be a gentleman of extensive vocabulary and convincing manner, goes into a settlement and interests one of the leading farmers in securing the services of a purebred stallion for himself and neighbours. This man in turn takes the promoter around and introduces him to those likely to become interested, with the result that a stallion worth from \$500.00 to \$1,000 is "syndicated" at from \$2,000.00 to \$3,000.00 and a joint note for the amount, signed by all the parties to the transaction, is obtained by the promoter. The bulk of these horses are being brought in here from the United States, although a large number of stallions bred in the Province of Ontario have been disposed of in this manner.

It cannot be doubted that the invasion of the easterly portion of the Territories and the Province of Manitoba by an army of glib-tongued stallion syndicate promoters has been the means of bringing about a crisis in the history of the horse industry of the West. The syndicating principle has proved a failure elsewhere, and is probably less likely to succeed here than anywhere else, and it might be advisable for this association to fully discuss the matter and have due publicity given to any conclusions arrived at. During a conversation I had with Mr. Archibald McNeilage, Editor of *The Scottish Farmer*, he stated as his firm opinion that the syndicating of stallions in this country would inevitably end in failure. The scheme has been tried over and over again in Scotland, under the most favourable conditions, was never found satisfactory and has now been abandoned entirely in favour of the premiuming of suitable horses by local agricultural societies. A number of farmers join forces with the object of securing high-class stallions, guaranteeing a certain number of mares for service at a fixed figure, and negotiations are then initiated with one or more stallion owners that make a practice of supplying horses on that basis. As a rule a stallion owner is satisfied to accept a small premium, providing he has a guarantee of a reasonable number of mares for service at a remun-

erative figure. It would appear that this would be the most suitable plan for Western Canada if breeders and stallion owners alike were prepared to do business on that basis. I would strongly urge that this proposition be carefully discussed at the annual meeting and that the findings of the association be communicated to agricultural societies throughout the Territories in order that public interest may be aroused in the matter, and the principle given a trial if found feasible.

I herewith attach a statement of receipts and expenditures for the past year, duly audited.

Respectfully submitted,

CHAS. W. PETERSON,
Secretary and Managing Director.

APPENDIX D.

TERRITORIAL NATURAL HISTORY SOCIETY.

Officers for 1903.

President..... Percy B. Gregson, Blackfalds, Alta.
 First vice president . . . C. W. Peterson, Regina.
 Second vice president.... A. G. Wolley Dod, Calgary.
 Secretary treasurer . . . T. N. Willing, Gov. Buildings, Regina.

Branch directors :

Entomology. . . . F. H. Wolley Dod, Calgary.
 Rev. J. Hinchcliffe, Red Deer.
 Botany..... C. Nivens, Prince Albert.
 E. B. Hutcherson, Regina.
 Ornithology..... Dr. Hy. George, Innisfail.
 F. Dippie, Calgary.

Ex-officio director :

The Commissioner of Agriculture, N. W. T.

Curators of museums :

Blackfalds, Alta ... Percy B. Gregson.
 Calgary, Alta..... J. F. Boyce, B.A.
 Regina, Assa..... T. N. Willing.

REPORT OF THE SECRETARY.

At Calgary, on 5th November, the fourth annual meeting of the North-West Entomological Society was held, the chair being occupied by the Right Reverend the Bishop of Saskatchewan and Calgary. The president in his address reviewed the history of the society since its inception. He said that early in its existence botany was included in its work and the economic side of the two subjects, entomology and botany, was brought before the farmers on every possible occasion, thus arousing an interest and overcoming to some extent the prejudice existing against children devoting time or attention to the observation of insect and plant life. After an extended presentation of the advantages to be derived from the study of the life histories of plants and insects, Mr. Gregson said field clubs had been organised at Lacombe and Red Deer schools and incidentally museums had been formed to accommodate the specimens collected. He then announced the names of the prize winners in the Territorial competition. Master D. Tipping, Blackfalds, got the prize, (\$2.50) offered by Dr. James Fletcher for the best collection of injurious and beneficial insects. Master Benj. Howell, Lacombe, won the society's prize for best numerical collection of insects. Dr. Fletcher's prize (\$2.50) for the best collection of plants was awarded to Miss Lucy Howell, Lacombe, the second prize given by the society, going to Miss Mary McDonald of Urquhart.

The president then suggested that the old society should be discontinued and that another of larger scope should be formed to which the members would transfer their allegiance and support.

After a vote of thanks to Mr. Gregson, who had acted as president, secretary and curator, for the energetic and untiring way in which he had developed, and conducted the affairs of, the late society, the chair was vacated.

(1) The organisation of the Territorial Natural History Society was then proceeded with, Mr. C. W. Peterson having been called to the chair. A constitution was adopted in the second paragraph of which the objects of the society are set forth as follows:

(a) To instruct farmers how to recognise beneficial and injurious insects, weeds and birds, and how to combat those that are injurious.

(b) To promote an interest in and the study of the economic and the scientific phases of the various branches of natural history.

(c) To establish one or more natural history museums at central points and collections in connection with schools throughout the Territories.

It was resolved that as the excellent work done by the North-West Entomological Society led up to the formation of the Territorial Natural History Society, the report of its president should be included in the first annual report of the new society and that the deficit of the former should be assumed by the latter.

A resolution was unanimously adopted urging the Territorial Government to provide at as early a date as possible the necessary accommodation for a public natural history museum.

As a nucleus for the formation of the museum at the Territorial capital a quantity of botanical and entomological material has been placed at the disposal of the society by the undersigned and will be displayed when adequate accommodation is provided.

The following property has been transferred from the old society to the new and is in the possession of the curator at Blackfalds.

Coleoptera—About 700 mounted specimens.

Lepidoptera { Rhopalocera—110 species and varieties.
Heterocera—Several hundred species and varieties

Entomology—Odonata—A small collection.

Tricoptera—A small collection.

Diptera—A small collection.

Beneficial and Injurious Coleoptera and their insects.

Botany—A collection comprising local plants, noxious weeds, and seeds of weeds.

Miscellaneous—Fossils of the Red Deer District and shells.

Respectfully submitted,

(Signed) T. N. WILLING,
Secretary.

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